

CHAPTER 6: DECENT SKILLS FOR INCLUSIVE ECONOMIC GROWTH

6.1 INTRODUCTION

The 25th anniversary of the democratic dispensation provides an opportunity for government departments and institutions to pause and reflect on the journey to date, and review the achievements, challenges experienced, and actions taken to address these challenges since 1994. Critical to this review is the extent to which the lives of historically disadvantaged people have improved or stagnated during the years of democracy, and what needs to be done over the next 25-years to permanently dismantle the apartheid legacy, and advance socio-economic development and prosperity for all South Africans, particularly the historically disadvantaged people (DPME 2019).

This chapter will speak to the extent in which the Post-school Education and Training (PSET) sector has succeeded in reaching the goal of education and training of the highest quality, leading to significantly improved learning outcomes as set in the National Development Plan (NDP 2011). The vision in the NDP for PSET is that the different parts of the education system should work together allowing students to take different pathways that offer high quality learning opportunities. There should be clear linkages between schools, Community Education and Training Colleges, TVET colleges, universities and other providers of education and training. There should also be clear linkages between education and training and the world of work. Furthermore, all people from schooling onwards should have access to quality career information and receive appropriate and adequate career guidance and advice to pursue education and training opportunities leading to a career and ultimately employment (NDP 2011).

The chapter is structured as follows: It starts with Section 6.2, Key Milestones, 1994 to 2019 (which addresses legislations and policies since 1994); followed by Section 6.3: The Post-school structure; Section 6.4: The National Qualifications Framework; Section 6.5: Drivers of change; Section 6.6: Access to education and training in the post-school sector (enrolment at higher education; TVET and CET colleges; enrolments in SETA skills development programmes; and graduations); Section 6.7: Efficiency in the post-school sector (including throughput and drop-out rates at higher education and TVET colleges; completions in artisanal programmes; efficiency in community education and training; efficiency in skills development and SETAs; and articulation); Section 6.8: Capacity in the post-school education and training system (incorporating capacity in each of universities, TVET colleges, CET colleges, SETAs, and the provisioning of teachers via the system); Section 6.9: Funding (higher education, TVET and CET colleges, NSFAS funding, and the NSF); Section 6.10: Budget (higher education, TVET and CET colleges); and Recommended priorities for the period 2019-2024; Recommended priorities for the period 2019-2030; and Recommended priorities in the next MTSF: Next 25 years

6.2 KEY MILESTONES, 1994-2019

Governments steer higher education through policies. However, in South Africa one of the biggest issues in the transformation of post-school education has been the development of a profusion of policies, as the country had to deal with the legacy of the past and yet also shape post-school education in order to enable economic growth in a globalised world (Hay and Mapesela 2009:3). Due to the underling democratic participatory policy-making process, the implementation of the proposed policies, acts and initiatives is time consuming (Mapesela and Hay 2005:113). Notwithstanding, progress has been made, although many challenges still lie ahead in order to open up post-school opportunities to as many as possible, especially the NEET (not in employment, education or training) in the country.

Since 1994 the South African government has formulated and adopted many pieces of legislation and policy to improve the quality of life of South Africa's people and promote economic and social transformation. The main development strategy statements since 1994 that were meant to deal with the challenge of assuring a better life for all were the *Reconstruction and Development Programme* (RDP) and the *Growth, Employment and Redistribution* (GEAR) programme. The RDP of 1994 proposed to use the budget and other state resources to deliver social services to the poor. The vision in the RDP was that of a government committed to human development in ensuring a better life through employment. Research, however, has shown that the RDP has failed to reach all its objectives (Hemson 2004), because there were not enough funding, insufficient staffing, a lack of people-driven development and poor co-ordination between institutions (Khosa 2003).

The Macro-economic Policy Framework GEAR that was released in 1996 aimed to alleviate poverty via a more cautious monetary policy and a budget deficit reduction. Although GEAR has contributed to economic growth, reduced high levels of government debt and stabilised inflation, there has been 'jobless growth' and it has thus also failed to meet the needs of the poor and unemployed (Chagunda 2006).

A Green Paper on higher education transformation (DoE 1996) confirmed the approach that internal efficiency in higher education would be produced through "reducing unit costs and increasing productivity". In 1997 Section 21 of the Higher Education Act (No. 101 of 1997) made all teacher education, and therefore colleges of education, part of the higher education system. On 1 January 2001, colleges of education were formally incorporated into existing universities and universities of technology. Their number reduced from 32 universities and universities of technology offering teacher education qualifications to 26. The main argument for the re-opening in recent years has been made most strongly by SADTU. Their view is that teacher shortages demand it, especially shortages in the foundation phase and mother tongue, as well as maths and science (Chisholm 2009).

The Skills Development Act was promulgated in 1998 with the purpose to expand the knowledge and competencies of the labour force in order to improve productivity and employment. With the aim of improving the quality of life of workers, their prospects of work and labour mobility; improving productivity; investment in education and training; promoting self-employment; and improving delivery of service, an institutional and financial framework were to be established, which would include the National Skills Authority (NSA), the National Skills Fund (NSF), the Sector Education and Training Authority (SETAs) and institutions in the Department of Labour.

In 2006 funds were allocated to

[Accelerated and Shared Growth Initiative for South Africa \(ASGISA\)](#)

programmes with the aim of improving policy implementation and economic growth by addressing challenges such as a lack of skilled and committed staff in the public service; a lack of human resources to implement policies; inadequate financial resources; corruption and mismanagement of funds; a lack of people-driven development; a lack of proper co-ordination between institutions; barriers to entry; unfair competition; and limited new investment opportunities. In order to achieve its targets, ASGISA has launched The Joint Initiative on Priority Skills Acquisition (JIPSA) which was a three year programme aiming at addressing the scarce skills challenge and enhancing policy implementation (Chagunda 2006). JIPSA was only one of the interventions that sought to address the skills challenges, while other interventions were from the departments of Education; Science and Technology; Labour; Public Service and Administration; Sector Education and Training Authorities (SETAs); the private sector; and civil society (Mlambo-Ngcuka 2006). JIPSA aimed to

reduce the unemployment rate from 30% to 15% and poverty from one-third to one-sixth of the population by 2014 (JIPSA 2008).

In 2008 the National Qualifications Framework Act was promulgated with the objectives of creating a single National Qualifications Framework (NQF) for learning achievements; facilitate access to and mobility and progression within education, training and career paths; enhance quality of education and training; accelerate the redress of past unfair discrimination in education, training and employment opportunities (DHET 2016a).

The Department of higher Education and Training (DHET) was established on 7 July 2009 in terms of Proclamation 48 (2009). It was created from parts of the former Department of Education (DoE) and the Department of Labour (DoL). All the functions pertaining to Higher Education, Further Education, Adult Education, Qualifications and Skills Development, which had been located in the former DoE and DoL, were absorbed into the newly Department of higher Education and Training (DHET 2016a).

The National Development Plan (NDP) released in 2011, highlighted serious shortcomings in the country's development path. In charting a new path for South Africa, the aim of the National Development Plan (NDP) is to eliminate poverty and reduce inequality by changing the life chances of millions of people, especially the youth by 2030 (National Planning Commission 2011). The core of the plan focuses on capabilities that each person needs, such as, *inter alia*, education, skills and job opportunities in order to have a better life. Towards this end, the vision of the NDP for the Post School Education and Training (PSET) system is to be expanded, become more effective, coherent and integrated.

The NDP has set the following targets to be met by PSET: An increase of 75% in the graduation rate of TVET colleges; producing 30 000 artisans per annum; an increase of 25% in the participation rate in TVET; producing 1 million learning opportunities per annum via private providers, Community Education and Training Colleges, and enrolment in workplace-based programmes to reach a 40% increase in the participation rate at PSET that excludes higher education. Targets for higher education include an increase in university science and mathematics entrants to 450 000; an increase of graduation rates to more than 25% by 2030; an increase in participation rates by more than 30%; and producing more than 100 doctoral graduates per million per year by 2030.

In 2013 the White Paper for Post-school Education and Training was published which outlined policy directions and the main objectives as follow: A post-school system that can assist in building a fair, equitable, non-racial, non-sexist and democratic South Africa; a single, coordinated post-school education and training system; expanded access, improved quality and increased diversity of provision; a stronger and more cooperative relationship between education and training institutions and the workplace; a post-school education and training system that is responsive to the needs of individual citizens, employers in both public and private sectors, as well as broader societal and developmental objectives. Progress has been made in the post-school system since 1994, although many challenges still remain.

A new policy position for Adult Education and Training (AET) was articulated in the *White Paper for Post School Education and Training System*, November 2013, which advocated the absorption of the PALCs into Community Colleges, a third-tier institutional type alongside the universities and TVET Colleges. The 2015 *National policy on Community Education and Training Colleges* (DHET 2015a) was finalised and gazetted in July 2015. It is noted that further comprehensive legislation, supported by piloting and research, be introduced for community colleges (Aitchison 2019).

The Department of Higher Education and Training (DHET) gazetted Articulation Policy for the PSET system in South Africa (Republic of South Africa [RSA] 2017). The policy creates an enabling environment to ensure amongst others, that: articulation occurs within and between the three NQF Sub-Frameworks; institutions work together to develop learning and work pathways; and support is provided for learners as they follow their individual learning and work pathways.

6.3 THE POST-SCHOOL STRUCTURE

The challenge of high unemployment levels, on the one hand, and persistent concerns about the quality and availability of skills, on the other, are widely regarded as constraining economic growth and development and a barrier to social inclusion and poverty reduction in the country. Therefore, the establishment of the DHET in 2009 was an important milestone to refocus the country on skills development and training. The former Department of Education (DoE) and the Department of Labour (DoL) became part of DHET. All functions pertaining to Higher Education, Further Education, Adult Education, Qualifications, and Skills Development, were absorbed into the newly formed DHET.

The integration of post-schooling under DHET was an important watershed. With the DHET commencing formal operations as a fully constituted Department in April 2010, it aimed to develop a more harmonized approach to post-school education and training that spanned a range of education and training provisioning in adult, further, higher education and skills training. DHET pulled together different policy processes and steadied the sector.

Structural inefficiencies and duplication of services in South Africa's higher education system have been systematically addressed with the re-organisation and merging of institutions. Between 2003 and 2005, from the original 36 universities and technikons, 23 higher education institutions were developed. These included the introduction of traditional universities, universities of technology and comprehensive universities. Colleges of education were incorporated in universities to achieve higher quality teacher education. In 2014, two new comprehensive universities were established, namely University of Mpumalanga and Sol Plaatje University. A third comprehensive university, Sefako Makgatho Health Sciences University (SMU) was established in 2014, and opened its doors in 2015 to its first cohort of students. Thus, there are currently 26 public universities consisting of 11 general academic universities, six universities of technology and nine comprehensive universities that combine the functions of both traditional universities and universities of technology. Under DHET, HEIs are guaranteed academic freedom under the Constitution and institutional autonomy under the Higher Education Act of 1997, subject to their public accountability.

Since 1994 much has been done to revitalise and expand a vocational stream in the technical colleges, as universities did not provide for the majority of learners from school who needed a more vocational focus (Land and Aitchison 2017). After 1998 the 152 technical colleges and training centres were merged into 50 Technical and Vocational Education and Training colleges and a new secondary level qualification, the National Certificate (Vocational), was introduced. The aim was to create stronger institutions, build their capacities and offer a wider range of specialised courses. In each of the merged colleges, previously disadvantaged colleges were integrated with previously advantaged colleges to allow for better utilisation of resources. The colleges are evenly spread across provinces in relation to their population.

Since the 1970s Adult basic education (ABE) was seen as a human right and form of redress for the legacy of disadvantage that resulted from apartheid era educational policies. State run night schools, called Public Adult Learning Centres (PALCs) have operated in South

Africa since 1977, after a period of forced closure in the 1950s by the apartheid state (Land and Aitchison 2017). With about 14 million NEETs (not in employment, education or training) in the country and 55% of work seekers under 24, a pressing ongoing educational problem was to find training, youth service programmes or occupational options for the NEETs (Cloete 2009).

A new policy position for Adult Education and Training (AET) was articulated in the *White Paper for Post School Education and Training System*, November 2013, which advocated the absorption of the PALCs into Community Colleges and the 2015 *National policy on Community Education and Training Colleges* (DHET 2015a) was finalised. The policy is to provide a framework to guide the function shift from the Provincial Education Departments to the Department of Higher Education and Training. It also acknowledges that a new Community Education and Training College Administrative Centre (CETCAC) have been established in each province to play an administrative role for the management and governance of the renamed PALCs.

In October 2016 *The National policy for the monitoring and evaluation of Community Education and Training Colleges* (including private colleges) was gazetted (DHET 2016b) and it was envisaged that the Community college system was to expand access to one million students by 2030. Community colleges were also to link directly with the work of public programmes such as the Expanded Public Works Programme, Community Works Programmes, Community Development Workers, Community Health Workers, SETAs, the Department of Trade and Industry, and the Construction Industry Development Board (Land and Aitchison 2017).

At present the whole post-school system is understood as comprising all education and training provision for those who have completed school, those who did not complete their schooling, and those who never attended school. It consists of the following institutions, which fall under the purview of the DHET:

- 26 public universities.
- 50 public Technical and Vocational Education and Training (TVET) colleges.
- 9 new Community Education and Training (CET) colleges (incorporating all the former Public Adult Learning Centres).
- Private higher education institutions.
- Private colleges, including private Skills Development Providers (SDPs).

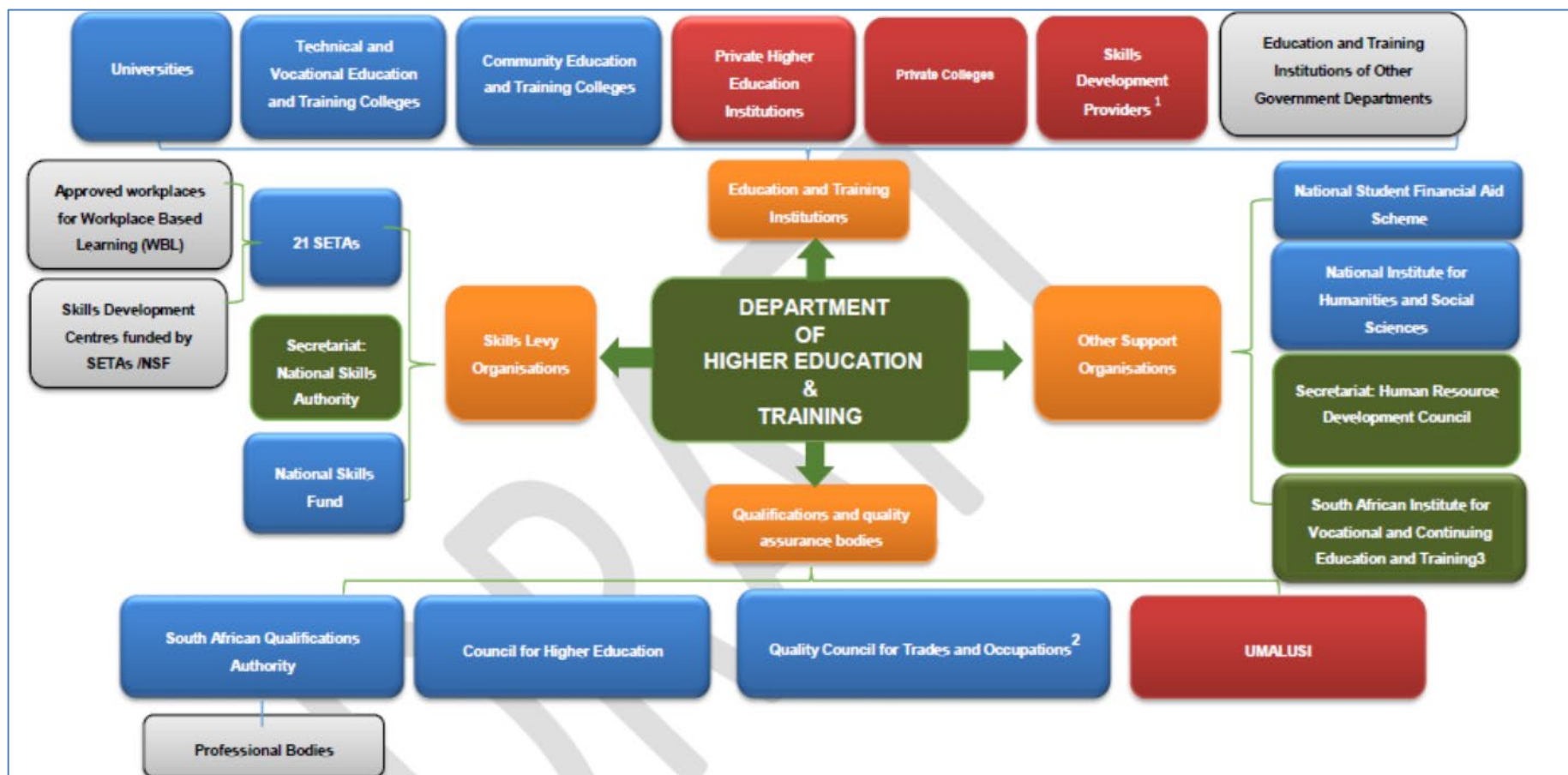
The DHET has oversight over a number of entities and components which support the delivery of education and training in numerous ways and which include:

- The Sector Education and Training Authorities (SETAs).
- The National Skills Fund (NSF).
- National Skills Authority (NSA).
- National Student Financial Aid Scheme (NSFAS).
- Regulatory bodies responsible for qualifications and quality assurance in the post-school education and training system, namely:
 - South African Qualifications Authority (SAQA).
 - The Council on Higher Education (CHE).
 - The Quality Council for Trades and Occupations (QCTO)

In addition, the DHET, through the Quality Councils (QCs), is responsible for assuring the quality of provision and for ensuring that the qualifications, offered by a number of state-owned post- school education and training institutions under the authority of government

departments, are registered. The Department also serves as the secretariat of the Human Resource Development Council of South Africa (HRDC). The HRDC is crucial to ensure that policies and practices across government, the private sector, labour, and a range of constituencies, are not in contradiction with each other and are working together in unblocking obstacles and supporting the strategic decisions needed to ensure human resource development and deployment across society and the economy. **Figure 1** below shows the range of institutions that forms the PSET system and their interlinkages:

Figure 1: Visual components of the PSET System



Notes: Green - Organisations that are located in the DHET
 Blue - Organisations located OUTSIDE of the DHET, that receive funds from DHET
 Red - Organisations located outside of DHET, that do not receive funds from DHET, but for which, DHET has certain legislative functions
 Grey - Organisations that do not receive funds from DHET, nor does DHET have legislative functions in relation to these organisations. However, DHET entities may have certain legislative responsibilities in relation to these organisations (for example, QCs quality assure formal programs offered by other government departments; SAQA registers professional bodies and SETAs accredit workplaces for WBL).

6.4 NATIONAL QUALIFICATIONS FRAMEWORK

Since 1994, a defining feature of the PSET system has been about structural change. While in principle the idea was for the various education and training pathways to articulate with each other, in practise matching knowledge and skills across the sectors proved to be difficult. Notwithstanding, since its establishment in 1996, the NQF has provided an organising matrix with multiple entry and exit points and has created “an integrated national framework for learning achievements” (SAQA Act 1995) across institutions.

In 2008 the National Qualifications Framework Act was promulgated with the objectives of creating a single national framework for learning achievements; facilitating access, and mobility and progress within education, training and career paths; enhance the quality of education and training; accelerate the redress of past unfair discrimination in education and training, and employment opportunities (National Qualifications Framework Act (RSA 2017).

The Department of Higher Education and Training (DHET) gazetted the Articulation Policy for the PSET system in South Africa (Republic of South Africa [RSA] 2017). Subsequently the NQF aimed to facilitate progression between the three phases of education and training – general, further and higher – as well as providing articulation between academic education and skills training. As there are known transitioning barriers, SAQA set up the SAQA-Durban University of Technology (DUT) Research Partnership for *Developing an understanding of the enablers of student transitioning between Technical and Vocation Education and Training (TVET) Colleges and HEIs and beyond*, to investigate successful transitioning models. By formally accrediting workplace training, it also opened up new spaces for skills acquisition. Further challenges with regards to articulation are discussed in section 6.7 (paragraph 6.7.6).

The following sections will address the extent to which access in PSET has been achieved; the efficiency in the system (which includes throughput, completion of artisanal qualifications, efficiency in CET, skills development, and articulation); capacity in the PSET system; as well funding and budget allocations in post-school education and training.

6.5 DRIVERS OF CHANGE

One of the critical economic challenges facing South Africa is high unemployment, but at the same time, a skills mismatch. The economy must respond to challenges of participating in a globally competitive environment with an approaching fourth industrial revolution, requiring a high skills base and at the same time also challenges of a local context that necessitates lower-wage jobs to absorb large numbers of unemployed people.

Significant changes to the development pathways is required in order to absorb especially the increasing number of young people that need to enter the world of work. On the other side of the spectrum the country needs to stay competitive in a global environment to grow the economy.

6.5.1 Unemployment

South Africa had an averaged unemployment rate of 25.60% over the period 2000-2018 (Trading Economics 2018). Furthermore, in 2017 there were about 14 million NEETs (not in employment, education or training) in the country of which 55.7% (7.8 million) were 15-34 years of age and 44.3% (6.2 million) 35-60 years of age. Not

surprisingly, a staggering 30.4 million people (55.5% of the population) were living in poverty (StatsSA 2017).

Table 1 shows that while those with qualifications higher than secondary education increased by 111% (1 710 522) from 1 541 015 in 1996 to 3 251 537 in 2016, this growth is not keeping up with the population being failed by the system and not receiving any education. The population that had no schooling grew by 7% (517 405) from 7 665 797 in 1996 to 8 183 202 in 2016, while the proportion of those who had completed primary school as highest qualification decreased by 14% (370 232) from 2 589 755 to 2 219 523 in 2016. Positive is that the proportion of the population that have completed secondary education increased by 215% (8 099 938) from 3 776 087 in 1996 to 11 876 025 in 2016. Much more needs to be done to educate more people in order to access job opportunities.

Table 1 Population by highest level of education attainment, 1996, 2001, 2011 and 2016

Educational Level	1996	2001	2011	2016
	Number			
No schooling	7 665 797	6 389 646	3 158 657	8 183 202
Some primary	9 073 585	12 084 349	11 759 190	12 955 150
Completed primary	2 589 755	2 809 832	2 460 771	2 219 523
Some secondary	9 956 526	11 276 087	14 575 180	16 351 639
Completed secondary	3 776 087	5 621 591	9 405 808	11 876 025
Higher	1 541 015	2 188 456	3 816 678	3 251 537
Other	5 980 808	4 449 815	6 594 277	816 582
Total	40 583 573	44 819 776	51 770 561	55 653 658

Source: Stats SA (Census 1996, 2001 and 2011 and Community Survey, 2016)

6.5.2 Transformation

Strides have been made in transforming the higher education (HE) system with regards to race and gender. Before 1994 the composition of staff at higher education institutions was still racially skewed, with white male academics dominating key areas of university and academic life, especially at historically white universities (DHET 2012). This trend has been changing gradually (Figure 21). Although the number of female lecturing staff had a stronger growth rate than the number of male lecturing staff over the period 1994-2017, the proportion of female lecturing staff was still slightly smaller than the proportion of male lecturing staff (Figure 21).

Recent interventions to further HE transformation include: The introduction of the “Staffing South Africa’s” Universities Framework and the immediate implementation of one of its components, the New Generation of Academics Performance (nGAP); the introduction of an Historically Disadvantaged Individual (HDI) Grant to support historic disadvantage universities to decisively overcome historical backlogs; and a review of university funding framework to enable it to better respond to sector needs (DHET 2016a).

6.5.3 Entrepreneurship

The National Development Plan (National Planning Commission 2011) sets out several ambitious goals for the small, medium, and micro enterprise (SMME) sector, including a target of 90% for employment opportunities to be created through the SMME sector by 2030. South Africa’s SMME sector account for over 60% of employment, compared to a global average of 77% (GEM 2012).

In South Africa, 70% of the SMMEs fail in their first year. Charney and Libecap (2000) found that entrepreneurship education increases the formation of new ventures, the likelihood of self-employment, the likelihood of developing new products and the likelihood of self-employed graduates owning high-technology businesses and in producing self-sufficient enterprising individuals. In addition prior entrepreneurial experience can lead to success (Ronstadt 1988). Chandler and Hanks (1994) found that specific experience in similar businesses ensures survival and growth.

Entrepreneurship education increases the formation of new ventures and prior entrepreneurial experience can lead to success. Informal traders function mainly as survivalists and there is a need to provide them with generic business skills in order to be able to generate more income.

6.5.4 Innovation

Innovation consist of new and improved ways of doing things which translates into new products (or services), processes, organisational methods or marketing practices introduced by firms to the market (OECD 2005). In a recent Innovation Index released by Bloomberg (Business Tech 2019, South Africa was placed 51st on the list – falling three places from 48th in 2018. It is the seventh year that the index analyses criteria using seven metrics, including research and development spending, manufacturing capability and concentration of high-tech public companies. The country stood out for its ‘patent activity’, which was ranked at 21st in the world. According to Bloomberg, South Africa also stands out for its ‘high-tech density’, which was ranked as the 35th highest in the world.

On the other end of the scale, South Africa was one of the lowest-ranked countries when it comes to ‘tertiary efficiency’, which looks at total enrolment at tertiary institutions, graduation levels, and how many science/engineering graduates a country has. The country also performed poorly in the ‘researcher concentration’ metric, which measures the number of professionals in the country who are currently engaged in research and development (Business Tech 2019).

In order to stay competitive and grow the economy, the country needs highly skilled professionals who are innovative, add value, and create work opportunities and employment for many others in the country.

6.5.5 Professionalism

The new National Qualifications Framework (NQF) Act no 67 of 2008 (South Africa 2009) foregrounds and gives new credence to the role of professional bodies in skills planning and development. The importance of ensuring high standards of quality and efficiency is particularly important in developing countries for economic development (Banerjee 2014). The author refers to the important role of a professional or sector body in creating a credible commonly agreed base to develop strategies to address priority skills and engage other sector and skills planning entities.

6.5.6 The Fourth industrial Revolution

Concurrently with the problematic socio-economic situation in the country, there are challenges brought by the fourth industrial revolution (FIR). The FIR is characterized by technology breakthroughs in artificial intelligence, automation and robotics and connectivity of billions of people with mobile devices and unprecedented access to data knowledge. Changes in skills requirements and the organization of work will create new challenges in the education and training environment. Foremost education and training will need to address the issue of continued and improved training in STEM

subjects and investment in Information and Communication Technologies (ICTs). Skills needs of teachers and lecturing staff along with the skills needs of learners and students are important (UNESCO 2017).

One of the largest ripples effects of the previous third industrial revolution was the move to online education which expanded higher education to previously unserved students. The revolution brought on by online courses is still ongoing which will enable students to build skills and knowledge more rapidly. Online and tech-enhanced teaching can open up campuses to reach students with diverse backgrounds. Smaller institutions can be enabled to partner with larger institutions to create interactive formats for online courses. However, education activities such as coaching and mentorship will not be as easily replaced by technology as activities of content transfer. Social skills such as persuasion, emotional intelligence and capacity for teaching others will be at a premium (Penprase 2018).

The FIR will impact on curriculums that will need to reduce the divisions between STEM and the humanities. Central in FIR curriculums will be social media obligations to identity groups, society, nation and world, as a result of the changing nature of social relations and interactions. Furthermore the interconnectedness of all systems (in realms of finance, marine ecology, forest conservation to name but a few) will need to be included in all curriculums to train students to recognize and manage the volatility of systems and how the one impacts on another. Curriculums will thus need to develop both technical skills and an awareness of ethical responsibility towards the human condition (Penprase 2018).

Important is that high-skills as required in a knowledge economy, do not displace old forms of social and economic organization, but co-exist alongside them in developing economies. High-skills production actually occurs in relatively few sectors which do not constitute total society. The bulk of personnel in the formal economy are from middle society, and their skills and well-being are the means necessary for a stable and well-functioning society (Kraak 2003).

However, traditional manufacturing capabilities will need to be augmented with new skills and requirements such as automation, programming, data and analytics, Artificial Intelligence, system integration and software development. State-of-the-art training facilities will be required to train especially artisans for the fourth industrial revolution. Further to this, the advanced and sophisticated, disruptive technologies may create new opportunities that are still conventional, although technology enabled by these disruptive technologies. For example, in the South African Metered Taxi industry, Uber has empowered thousands of previously unemployed and employed lower skilled workers. Ironically, the increased roll-out and adoption of artificial intelligence driven self-service technologies may create an increased demand for specialised “human to human” customer service channels and interactions. What is more, there is an opportunity where artisanal craftsmanship meets automation, a pairing of seemingly separate spheres with the end result of producing the finest handmade products on a massive scale to meet the demand of markets by the press of button. There is no substitute, at least not yet, for human senses, and the feeling, thinking brain behind them, and yet there is similarly no way for humans to work with the precision and the unceasing drive of a robot. As a result, we are starting to find co-working to robots in new environments beyond their usual factory floors, but in bakeries, coffee shops and even vegetable farms, working alongside craftsmen whose trade is authentic only through their unique human creativity (Engineering News 2018).

While labour intensive emerging economies may be tempted to simply oppose the adoption of technologies born out of the FIR, globalisation with increased competition from established economies will simply result in less foreign investment, slower economic growth and increased unemployment. An aggressive, although strategic adoption of technology is essential in ensuring that the workforce is adequately equipped for a rapidly changing environment. All role players in the PSET environment, including the private sector, should align as a matter of urgency around the real skill demands required in order to not only upskill the existing workforce, but also prepare students to take their rightful place in the future workforce. To sustain the ongoing rapid technological advances that will impact on the workforce, lifelong learning will be paramount (Rossouw 2018).

The challenge for DHET is thus to create broad and equitable access to a full spectrum of post-school opportunities, encompassing higher education and innovation, TVET Colleges, Community Colleges, and workplace training that empower the current and future workforce.

Summary

One of the critical economic challenges facing South Africa is high unemployment, but at the same time, a skills mismatch. South Africa had an average unemployment rate of 25.60% since the year 2000, while in 2017 there were about 14 million NEETs in the country. On the other side of the spectrum the country needs to stay competitive in a global environment to grow the economy.

Significant changes to development pathways are required in order to absorb especially the increasing number of young people that need to enter the world of work. Strides have been made in transforming the HE system with regards to race and gender since 1994. Recent interventions to further HE transformation include: The introduction of the “Staffing South Africa’s” Universities Framework and the immediate implementation of one of its components, the New Generation of Academics Performance; the introduction of an Historically Disadvantaged Individual Grant to support historic disadvantage universities to decisively overcome historical backlogs; and a review of university funding framework to enable it to better respond to sector needs.

The NDP sets out several ambitious goals for the SMME sector, including a target of 90% for employment opportunities to be created through the SMME sector by 2030. Informal traders function mainly as survivalists and there is a need to provide them with generic business skills in order to be able to generate more income.

Innovation consist of new and improved ways of doing things which translates into new products (or services), processes, organisational methods or marketing practices introduced by firms to the market. In a recent Innovation Index released by Bloomberg, South Africa was placed 51st on the list – falling three places from 48th in 2018. The country stood out for its ‘patent activity’, which was ranked at 21st in the world. South Africa also stands out for its ‘high-tech density’, which was ranked as the 35th highest in the world. However, South Africa was one of the lowest-ranked countries when it comes to ‘tertiary efficiency’. The country also performed poorly in the ‘researcher concentration’ metric. In order to stay competitive and grow the economy, the country needs highly skilled professionals who are innovative, add value, and create work opportunities and employment for many others in the country.

Concurrently with the problematic socio-economic situation in the country, there are challenges brought on by the fourth industrial revolution (FIR). Changes in skills

requirements and the organization of work will create new challenges in the education and training environment. Foremost education and training will need to address the issue of continued and improved training in STEM subjects and investment in Information and Communication Technologies (ICTs). Skills needs of teachers and lecturing staff along with the skills needs of learners and students are important.

One of the largest ripples effects of the previous third industrial revolution was the move to online education which expanded higher education to previously unserved students. The revolution brought on by online courses is still ongoing which will enable students to build skills and knowledge more rapidly. Social skills such as persuasion, emotional intelligence and capacity for teaching others will be at a premium. Curriculums will need to develop both technical skills and an awareness of ethical responsibility.

6.6 ACCESS TO EDUCATION AND TRAINING IN THE POST-SCHOOL SECTOR

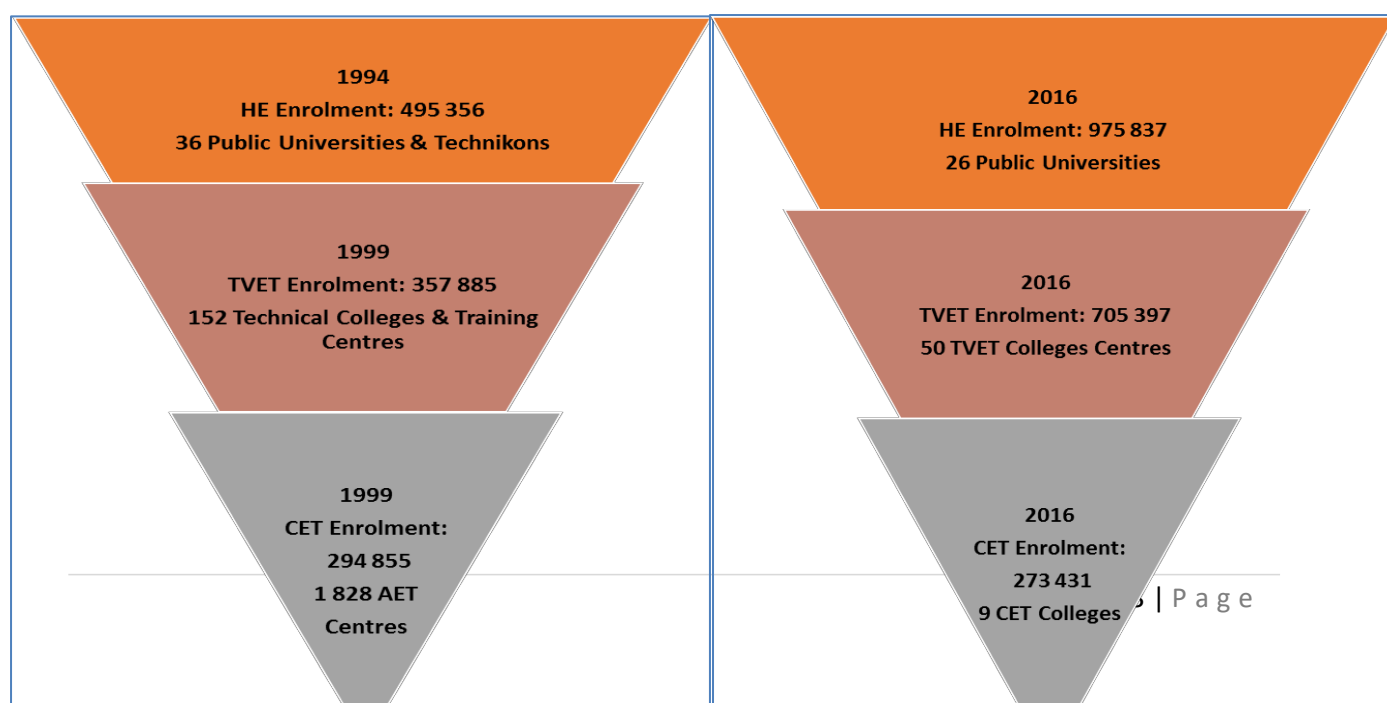
6.6.1 Introduction

The stability and expansion of middle society should be a key political goal for countries such as South Africa. Manufacturing and intermediate skilling continue to be important to the advanced, as well as developing economies across the globe, including South Africa (Crouch *et al* 1999). High-skills are required in relatively few sectors of the economy (such as petrol, gas, chemicals, dyes, paints, pharmaceuticals and office equipment), while those with career-oriented and vocational qualifications, such as para-professionals and mid- level technicians (required in sectors such as engines, machine tools, metal machine tools, and non-electric machines) are required in large numbers in an increasingly sophisticated 'knowledge' economy. Globally learners in pre-degree post-school programmes constitute the vast majority of enrolments in the post-school system (Kraak 2012).

As shown in **Figure 2**, PSET provisioning has always been in the shape of an inverted pyramid since 1994 up to 2016, with higher number of enrolments at universities than at the intermediate levels. The challenge in South Africa is thus to reverse the inverted pyramid problem characterising South Africa's education system (Kraak 2012).



Figure 2: Number of students enrolled in public institutions over time



Source: DHET (2018)

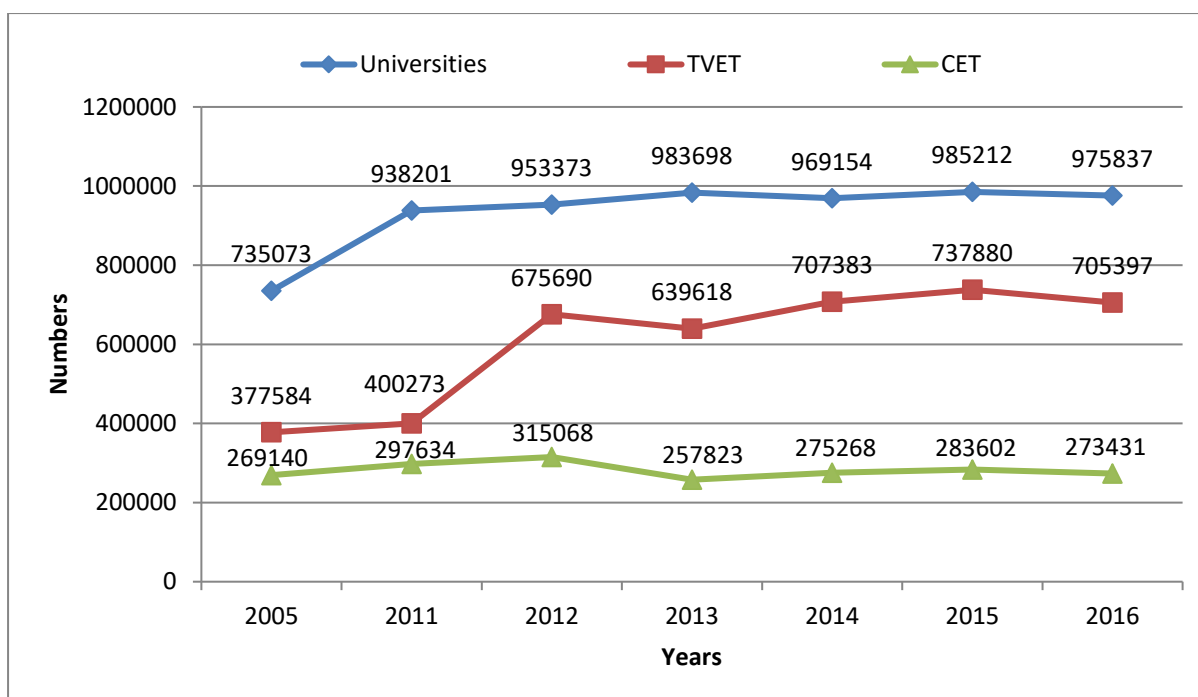
6.6.2 Progress in enrolment in post-school education

One of South Africa's greatest education and training challenges is to increase the provisioning of intermediate band qualifications, such as post- Grade 12, pre-degree qualifications (NQF Levels 5-6). In this regard, the public PSET system has made progress with headcount enrolments at TVET colleges that have almost doubled from 357 885 in 1999 to 705 397 in 2016.

With the target of 1.6 million enrolments in higher education institutions by 2030, as set out in the NDP, it is encouraging that enrolments at universities have also increased from 495 356 in 1994 to 975 837 in 2016. Conversely, enrolments at Community Colleges have experienced a decline from 294 855 enrolments (at 1 828 AET institutions) in 1999 to 273 431 in 2016 (at nine Community Colleges).

Progress in post-school enrolments is especially revealed in the compound annual growth rate (CAGR) over the period 2005-2016 (**Figure 3**). Enrolments at TVET colleges had the highest CAGR of 5.9% over this period, while universities had the second highest growth in enrolments (2.6% CAGR). Community colleges have also experienced some growth in enrolments, although with a very small CAGR of 0.1% over the same period. Notwithstanding a slight growth in numbers at community colleges since 2005, enrolments at these colleges were still lower than in 1999 (PSET 2019).

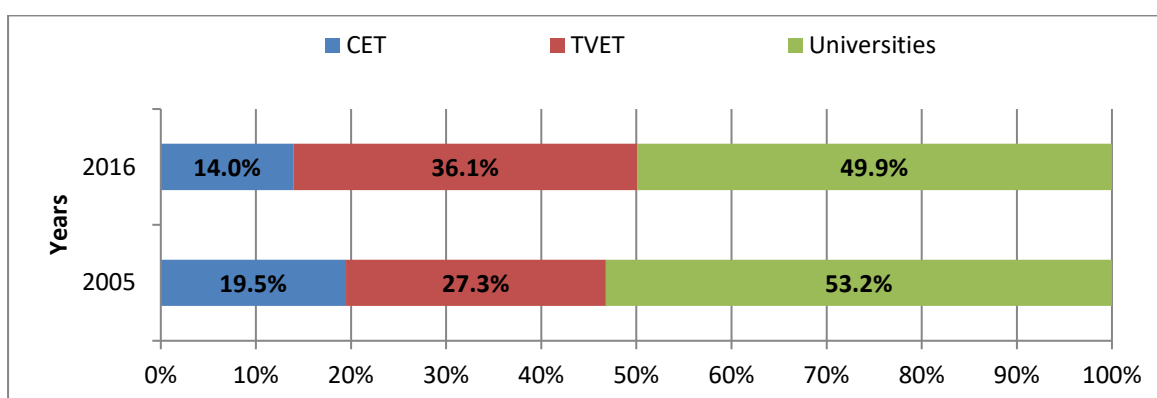
Figure 3: Growth in enrolments at CET, TVET and the University Sector, 2005-2016



Source: DHET 2013, 2016 and 2018

Figure 4 shows the change in proportion of enrolments among three type of PSET institutions since 2005. The proportion of those that were enrolled at TVET colleges has increased from 27.3% in 2005 to 36.1% in 2016. Although enrolments at universities have also increased over the same period, the proportion of university enrolments among the three types of institutions has narrowed from 53.2% in 2005 to 49.9% in 2016. The proportion of Community College enrolments among the three types of institutions has decreased from 19.5% (269 140) in 2005 to 14.0% (273431) in 2016. Enrolments at Community Colleges urgently need to be increased to a larger extent.

Figure 4: Change in the proportion of enrolments at CET, TVET and the University Sector, 2005 and 2016

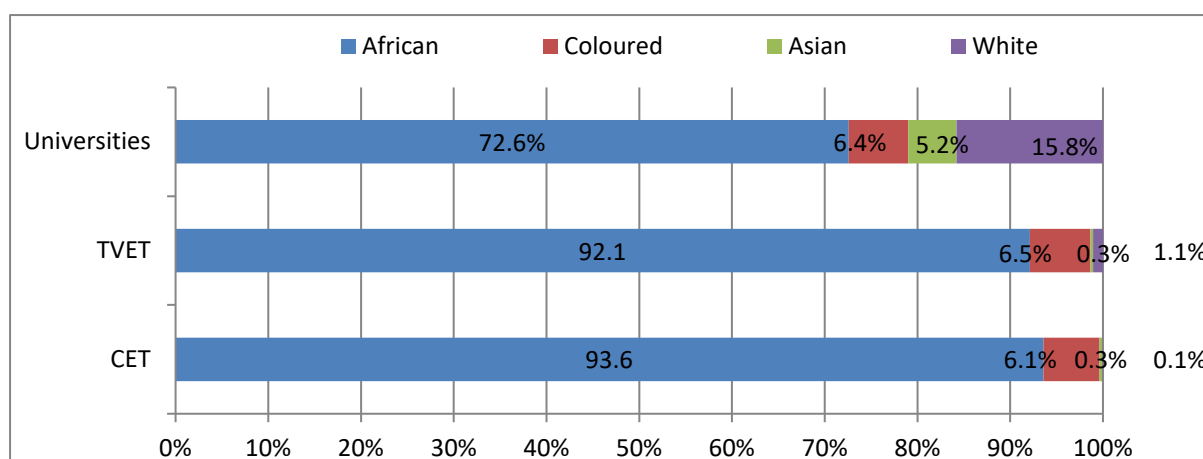


Source: DHET 2013, 2016 and 2018

Race and gender participation rates also need to be assessed in determining the extent of transformation at PSET.

Great progress has been made with regard to changing the racial composition in PSET since 1994 when 42.7% of student enrolments at universities were white and 44.9% African. By 2016 the university demographics have changed to such an extent that only 15.8% of the student population were white, while 72.6% were African (**Figure 5**). Africans also made up the majority at both TVET and CET colleges (92.1% and 93.6% respectively) in 2016. However, the inverted enrolment pyramid at PSET persists among all the racial groups in the country and needs to be addressed.

Figure 5: Racial composition in PSET enrolments, 2016

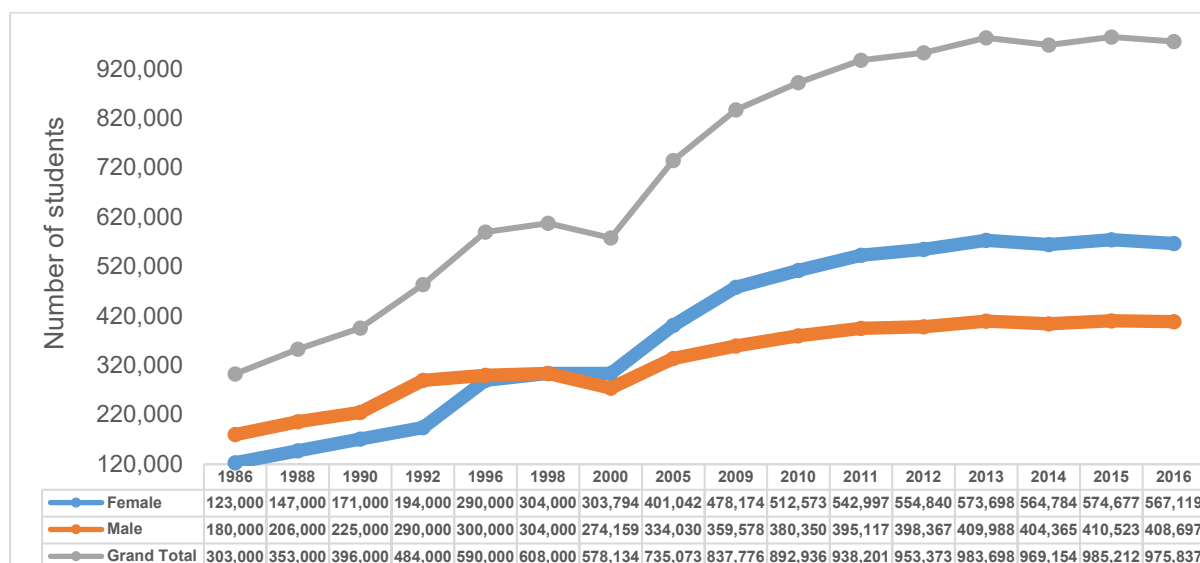


Source: DHET 2018

PSET enrolments according to gender

Access to universities had a CAGR of 4% over the period 1986-2016 with enrolments increasing from 303 000 in 1986 to 975 837 in 2016 (**Figure 6**). Over the same period female enrolments at universities has increased with a CAGR of 5.2%, while that of males have increased with a CAGR of 2.8%. Before 1998, the university sector was male dominated in terms of enrolment, but female enrolments has increased since 1998. There are now more female (567 119) than male (408 697) students enrolled at universities, a trend which is likely to continue, fuelled by the increasing number of females passing matric compared to male learners. Note that the female enrolment rate surpassed that of males since 2000 which shows the impact of government policies.

Figure 6: Enrolment trend at Universities by gender, 1986-2016



Source: Statistics for PSET, 2016

Table 2 shows that:

- The participation rate of African students increased from 11.6% in 2005 to a high of 16.5% in 2013, and has decreased slightly to 15.7% in 2016;
- The participation rate of Coloured students increased from 12.4% in 2003 to 14.6% in 2016;
- The participation rate of Indian students in 2005 was 50.6% and in 2016 it was 47.1%;
- The participation rate of White students decreased from 60.6% in 2005 to 50.3% in 2016; and
- The participation rate of females is greater than that of males among all groups.

Table 2: Gross enrolment ratio at higher education institutions by race and gender, 1997-2016

Race	Gender	1997	2000	2005	2010	2012	2013	2014	2015	2016
Black African	Male	n.a.	n.a.	10.4	11.8	13.1	13.4	12.6	12.9	13.1
	Female	n.a.	n.a.	12.9	16.5	19.1	19.5	18.2	18.3	18.2
	Total	n.a.	n.a.	11.6	14.1	16.0	16.5	15.4	15.6	15.7
Coloured	Male	n.a.	n.a.	10.9	12.4	11.1	11.2	10.8	11.0	11.0
	Female	n.a.	n.a.	13.9	18.5	17.4	17.9	17.6	18.2	18.1
	Total	n.a.	n.a.	12.4	15.5	14.2	14.5	14.2	14.6	14.6
Indian/Asian	Male	n.a.	n.a.	45.1	37.4	38.2	39.0	38.7	38.5	37.5
	Female	n.a.	n.a.	56.1	54.2	56.8	59.2	59.3	60.5	57.0
	Total	n.a.	n.a.	50.6	45.6	47.4	48.9	48.9	49.3	47.1
White	Male	n.a.	n.a.	57.5	52.1	48.8	48.3	46.6	45.8	43.6
	Female	n.a.	n.a.	63.6	62.8	60.8	61.3	59.9	59.9	57.2

	Total	n.a.	n.a.	60.6	57.4	54.7	54.7	53.1	52.8	50.3
Total	Male	13.1	12.3	14.4	15.0	15.9	16.0	15.2	15.4	15.3
	Female	12.7	13.6	17.4	20.4	22.6	22.8	21.7	21.7	21.4
	Total	12.9	12.9	15.9	17.7	19.2	19.5	18.4	18.6	18.4

Source: 2016 Higher Education Management Information System (HEMIS) Database; and Mid-year Population estimates P0302, Stats SA.

Whilst the participation rate of African and Coloured students has increased as from 2013, these groups still fall some way short of the 20% target. It is a matter of concern that the participation rate of African students' decreased slightly from 2013, and if this is a trend, it must be reversed. Conversely, the participation rates of Indian and White students are substantially above the 20% target. Continued attention has to be paid to improving the participation rate of African and Coloured students.

Participation by those with disabilities

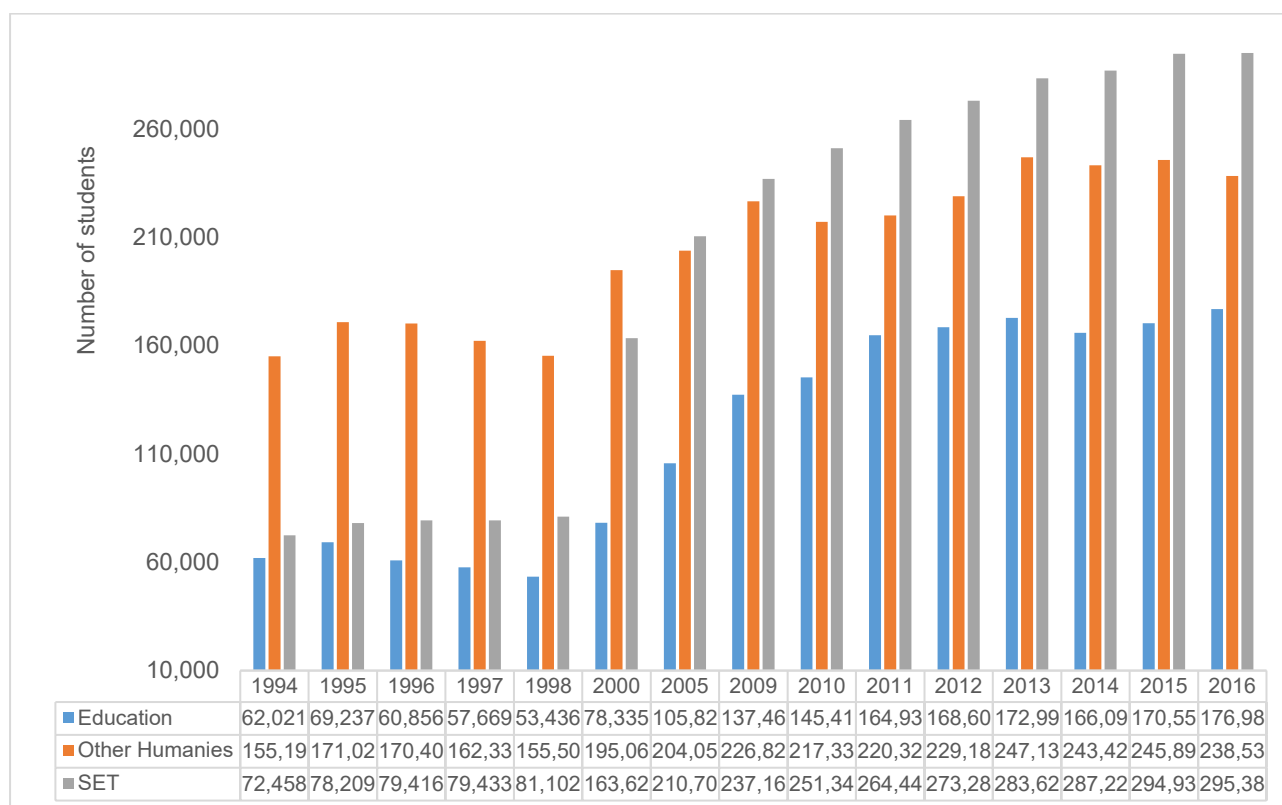
In 2016, just less than 1% (7 525) of students enrolled in public HEIs and who reported to have some disability, of which 51.1% (3 848) were female while 48.8% (3 674) were male students (DHET 2016).

Enrolment by Fields of Study

Science and technology are key to development and underpin economic advances, improvements in health systems, education and infrastructure (NPC 2011). The country thus needs to increase enrolment at PSET in fields of study that can contribute to economic advancement.

Increased enrolment in the 1990 was mainly in the Humanities, with Science Education and Technology (SET) lagging far behind. However, this has been changing slowly, with more students enrolling in SET by 2005. Since then SET enrolment has increased more than enrolments in the Humanities, standing at 295 383, compared to 238 535 by 2016 (**Figure 7**). Though it took time to see this change, it is a significant change in terms of meeting the economic needs of a country that is becoming largely a knowledge economy.

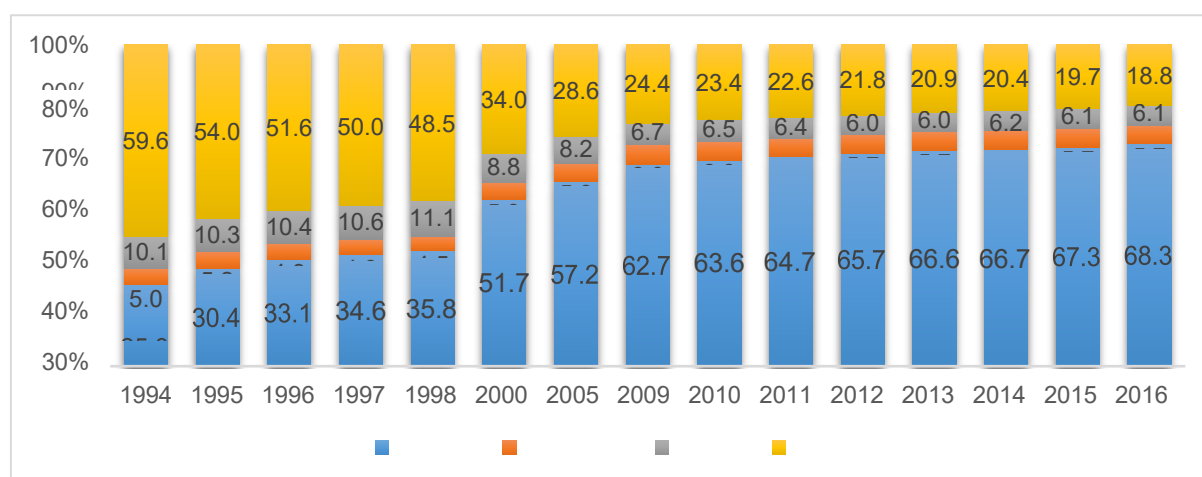
Figure 7: Enrolment by fields of study



Source: DHET, 2017

Government policies of increasing access also impacted on changing the demographics of students enrolled in SET over the years (**Figure 8**).

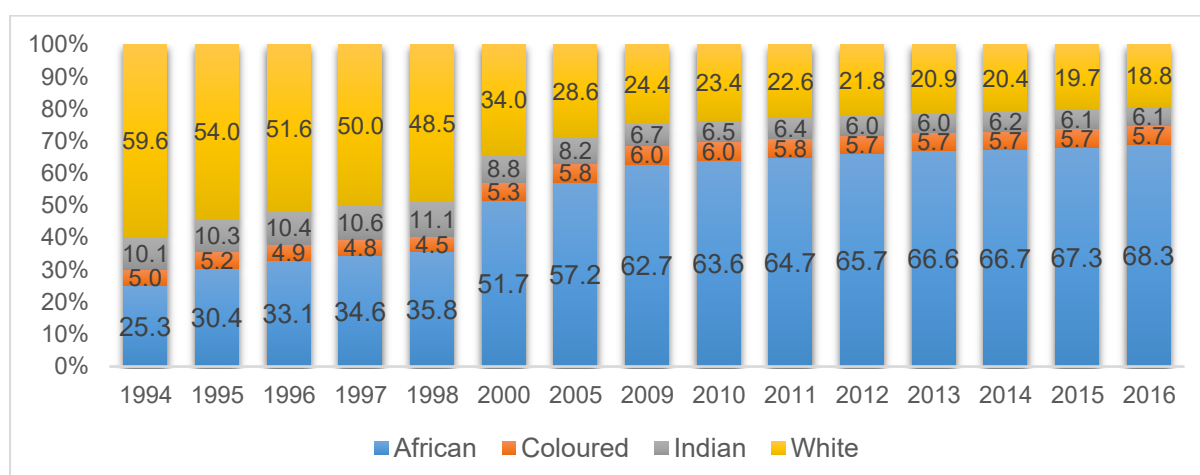
Figure 8: Proportions of SET enrolled students by race



Source: DHET, 2017

While the race composition of students enrolled in SET has been changing rapidly, the change in terms gender has been slow. Males continue to dominate in this field of study. Although fewer females opt to enrol at university for SET, the proportion of females enrolling continues to improve (**Figure 9**).

Figure 9: Proportion of SET enrolment by gender

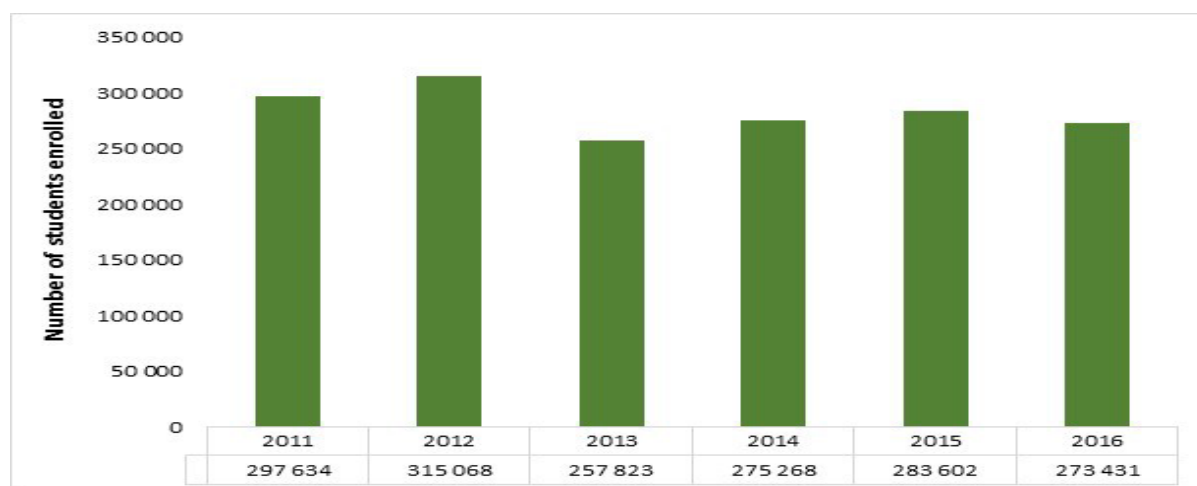


Source: DHET, 2017

Enrolment in CET Colleges

In 1999 there were 294 566 learners in 2 226 adult centres that had increased to 439 185 by 2002. In **Figure 10** it is shown that the number of learners in adult centres have decreased over the years to 273 431 by 2016. This could be as a result of the process of shifting functions that still needs to be finalised in order for centres to function at full capacity and accommodate more learners, including the youth, as envisaged the White Paper for PSET (DHET).

Figure 10: Number of students enrolled in CET Colleges



Source: Statistics for PSET, 2016

Enrolment in SETA skills development programmes

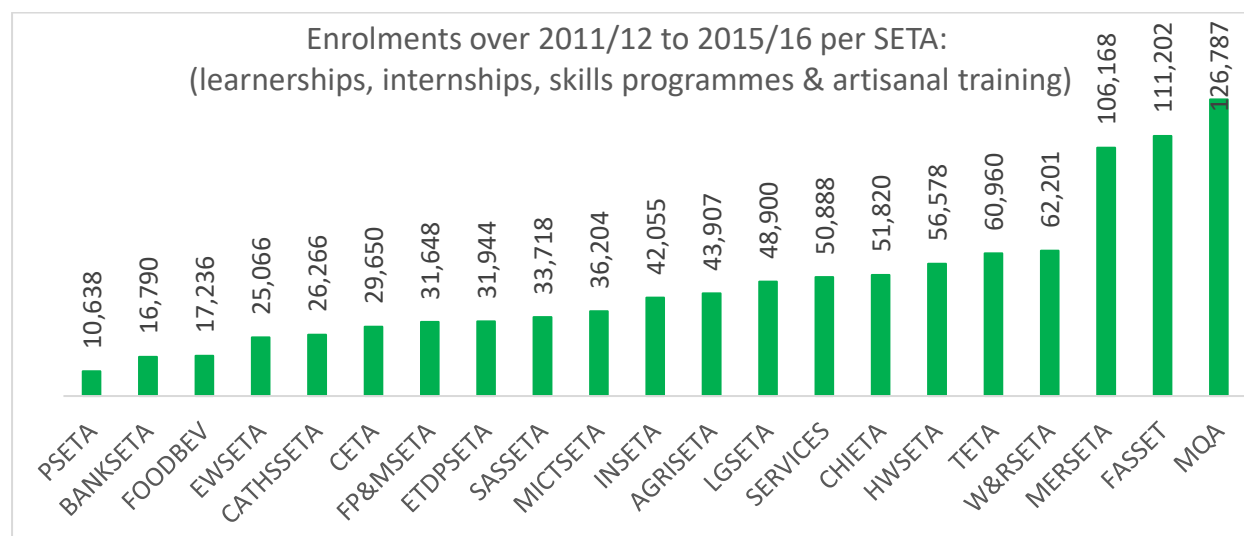
The aim of the Skills Development Act of 1998 was, *inter alia*, to provide an institutional framework to develop and improve the skills of the South African workforce through learnerships; the financing of skills development; and to provide for and regulate employment services.

Currently there are 21 SETAs to facilitate industry-specific and sectoral training for both the employed and the unemployed. During the first years of implementation, over 17

000 employees and 8 300 unemployed learners were registered in learnerships, which means only 33% were unemployed learners.

Over the period 2011-2016, 920 626 learners were enrolled for learnerships, internships, skills programmes and artisanal training of which most (112 787) were enrolled through the MQA, FASSET (111 202) and MERSETA (106 168) (**Figure 11**). With the skills development institutional framework in place, in future more of the unemployed in the country will need to access skills development programmes.

Figure 11: 5 Year Enrolment per SETA



Source: Draft NSDSIII Data Report, Mzabalazo 2018

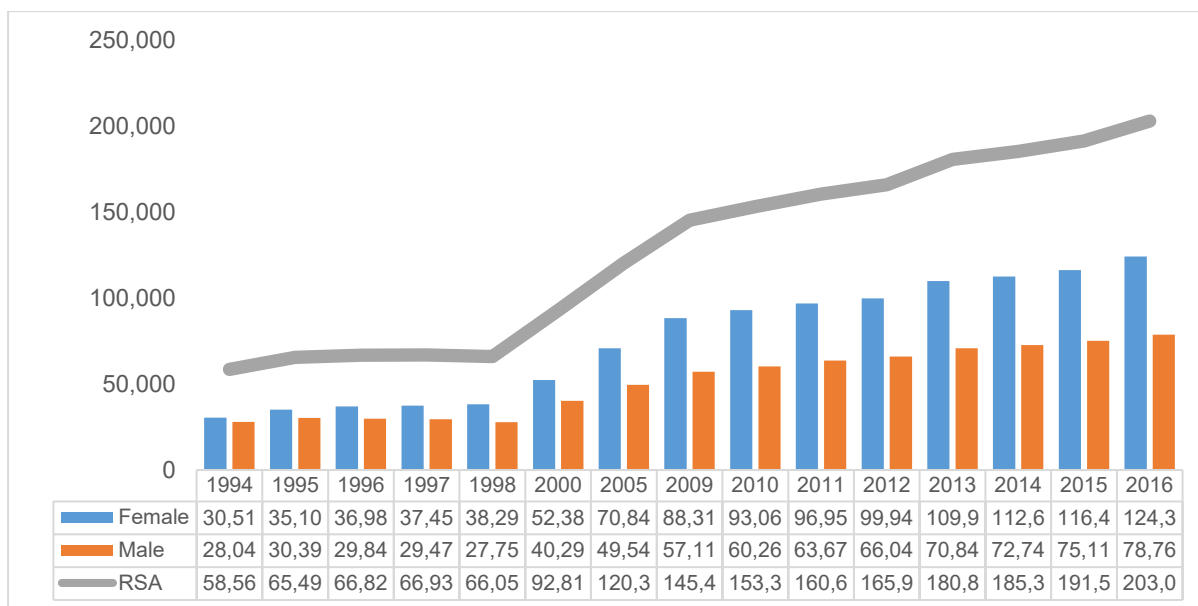
6.6.3 Graduations

Government policies are starting to have an impact, as institutions of higher education are in the process of producing more graduates (shown in **Figure 12**).

Over the whole period 1994-2016, graduations had a CAGR of 5.8% with a slower growth (3.1% CAGR) over the earlier period (1994-1998) and higher growth (6.4% CAGR) from 1998 up to 2016.

There were more female graduations than male graduations in each and every year over the period 1994-2016. Male graduations have even decreased slightly in 1998, while female graduations had accelerated to reach a CAGR of 6.8% over the period 1998-2016.

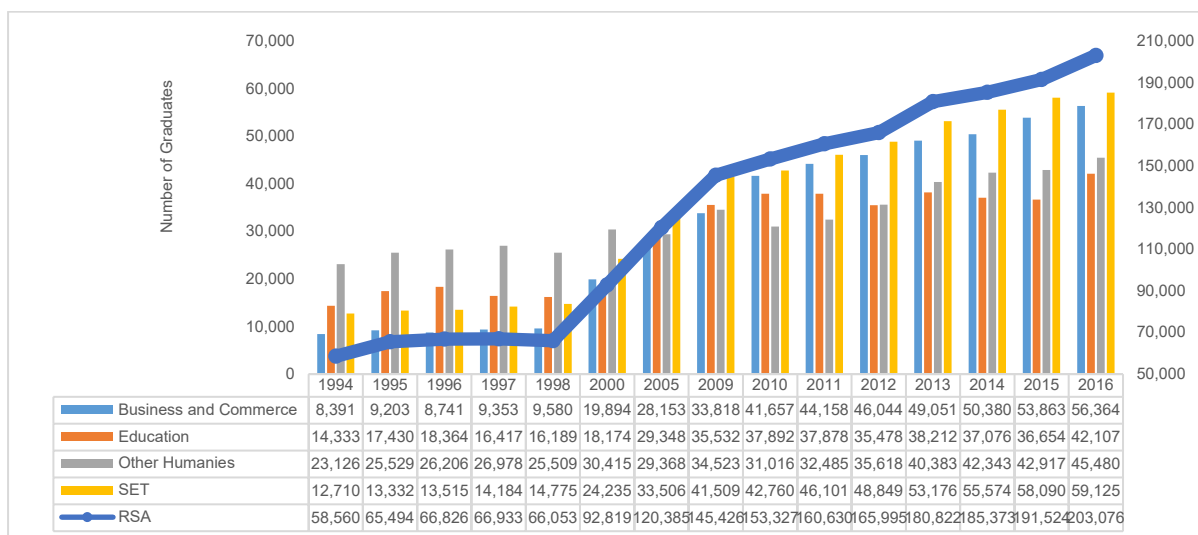
Figure 10: University graduates over years



The proportion of African students graduating at universities rose from 36% in 1994 to 68% by 2016. In the meantime, the proportion of white students graduating has decreased from 53% in 1994, to 19% in 2016. The demographics have drastically changed to reflect the country demographics.

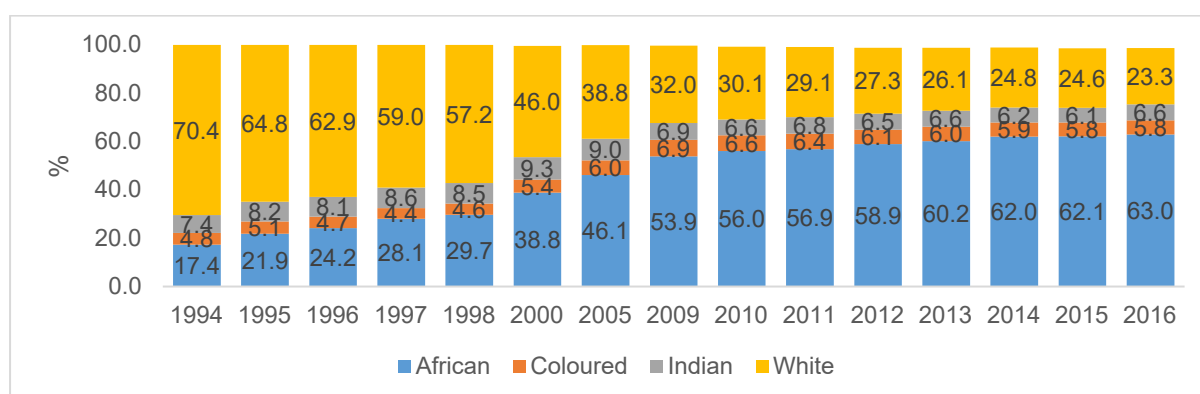
In 1994 over a third of students graduated in the humanities, about a quarter in education, just less than a quarter in SET and the least in Business and Commerce fields of study. This trend has changed since 2005, with over a quarter of students graduating in SET fields of study and less than quarter graduating in each of the other fields of study (**Figure 13**).

Figure 11: University graduates over years



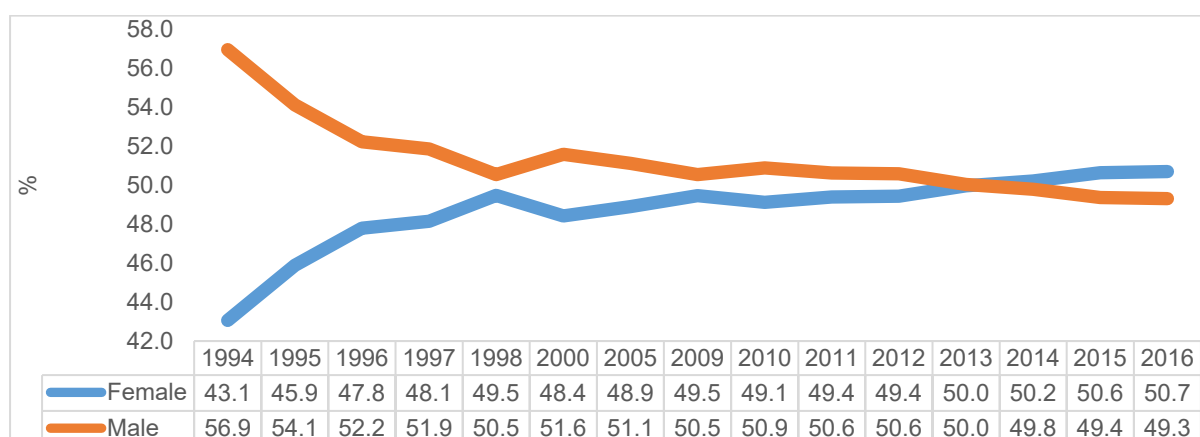
Government policy had an impact by increasing access to higher education, as well as impacting on the transformation in graduations. The proportion of Africans graduating in SET fields of study has increased since 1994 from 17.4% to 63.0% in 2016 (**Figure 14**).

Figure 12: Proportion graduates in SET by race



While proportionally more males than females were enrolled in SET since 1994 up to 2000, more females proportionally were enrolling in SET since 2000. More males proportionally than females graduated in SET fields of study over the period 1994-2012, while the proportion of female graduates started to surpass that of male graduates since 2014 up to and including 2016 (**Figure 15**).

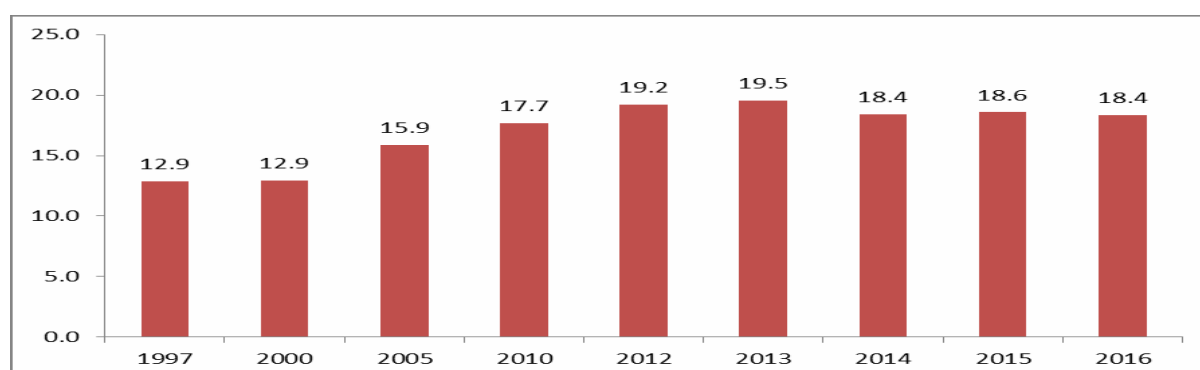
Figure 15: Proportion of SET graduates by gender



The country has done very well in increasing access, and its pro-poor policies have resulted in increased enrolments not only at universities, but have changed the university profile from largely being white to being reflective of the demographic profile of the country. Not only has the country seen an increased number of Africans, but increased enrolment in SET, including female graduates in SET. These great strides could not be achieved without concerted efforts in terms of policy changes, interventions and budgets to support pro poor approaches of government. While at macro level there has been a huge progress, some challenges remain and need to be dealt with going forward.

The Gross enrolment ratio over a twenty year period from 1997 to 2016 at higher education has increased from 12.9% in 1997 to a high of 19.5% in 2013, then decreased to 18.4% in 2014 and has remained relatively steady since then (**Figure 16**). The stagnation in the participation rate is likely a sign of a system that is under capacity constraints, in terms of factors like infrastructure, funding and staffing. This presents a challenge in a knowledge based economy.

Figure 16: Gross enrolment ratio in higher education, 1997-2016



Challenges in creating more access

The challenge in South Africa is to reverse the ‘inverted pyramid’ characterising South Africa’s education system. With 14 million NEETs in the country, the current focus in the PSET system should be on turning around this grave situation by providing access foremost to the new Community Education and Training colleges and increase the skills levels and employability of as many currently unemployed people as possible. However, compared to enrolments at higher education and TVET colleges, the proportion of Community College enrolments has decreased in 2016. Enrolments at Community Colleges urgently need to be increased to a larger extent in order to absorb the large proportion of NEETs. Lower-wage jobs need to absorb the large numbers of unemployed people and post-school access in Community Colleges need to increase as a matter of urgency.

Department of Labour and Higher Education and Training should work together in offering retrenched workers training at CETCs and explore the possibility of using UIF for skills training at both CETCs and TVET colleges.

Online and technology-enhanced teaching need to open up campuses to reach students with diverse backgrounds. Massive Open Online Courses (MOOCs) can increase PSET access accompanied by policies to regulate the use of online instruction.

Strengthen distance education as an alternative education and training vehicle to open PSET to more people and increase opportunities for upgrading qualifications.

Open Education Resources (OER) offers a number of courses that are open to those with Internet access at no additional cost, however policies needs to be developed to assure that standards are on par with conventional education and training.

The connectivity rate of educational institutions needs to speed up at a reduced cost and at a zero rate for government approved educational websites.

CETCs and TVET colleges could play an important role in providing alternative opportunities to gain access to education and training, previously denied to the majority in the country. Most people have cell phones and can be used to improve opportunities via Internet access.

CETCs and TVET colleges can incite enthusiasm for entrepreneurial initiatives by providing interesting programmes and courses that skill people to enable them to start

own businesses, especially with the Small Business and Innovation Fund receiving R3.2 billion in the 2019 budget year to support small business intermediaries.

Because South Africa needs to expand middle society and increase middle level skills (post- Grade 12, pre-degree qualifications at NQF Levels 5-6) that are required in the formal economy, access to TVET Colleges must be improved. In this regard, the public PSET system has made progress with headcount enrolments at TVET colleges that have almost doubled since 1999. Enrolments at TVET colleges still need to increase, as there are proportionally lower enrolments at TVET colleges than at universities.

Great progress has been made with regard to changing the racial composition in PSET since 1994. African enrolments made up the majority at universities, TVET and CET colleges in 2016, although African and Coloured student's enrolments still need to be increased to reach the 20% target. However, the enrolment of all racial groups need to be increased firstly at CET colleges (currently with lowest enrolment proportionally), secondly at TVET colleges, and then at universities to address the 'inverted pyramid'.

More people with disabilities need to be enrolled at PSET, as only 1% of those that have enrolled at higher education in 2016 were people with disabilities.

The increase in SET enrolments (surpassing enrolments in the Humanities) is a significant change in terms of meeting the economic needs of a country that is becoming largely a knowledge economy. While the race composition of students enrolled in SET has been changing rapidly, the change in terms gender has been slow and more females need to enrol in SET at universities.

The Gross enrolment ratio over a twenty year period from 1997 to 2016 at higher education has increased and then remained relatively steady since 2016. The stagnation in the participation rate is likely a sign of a system that is under capacity constraints, in terms of factors like infrastructure, funding and staffing. This presents a challenge in a knowledge based economy faced with high unemployment rates at the same time. This will require a well thought through balancing of funds between higher education, the TVET sector and CET sector going forward.

Summary

The challenge in South Africa is to reverse the inverted pyramid problem characterising South Africa's education system. The PSET system is changing gradually in providing access to education and training opportunities to more people in the country.

Access to TVET colleges has improved to the largest extent since 2005, as enrolments at TVET colleges had the highest growth rate, followed by universities. Although access to community colleges has also improved slightly since 2005, the number of enrolments (294 566) were still lower than that in 1999. The proportion of enrolments at community colleges in relation to enrolments at TVET colleges and universities has decreased since 2005. Notwithstanding a slight growth in numbers at community colleges since 2005, enrolments at these colleges were still lower than in 1999. Enrolments at Community Colleges urgently need to be increased to a larger extent.

By 2016 the university demographics have changed to such an extent that Africans made up the majority at higher education, TVET as well as CET colleges. However, the inverted enrolment pyramid at PSET persists among all the racial groups.

Whilst the participation rate of African and Coloured students has increased at higher education, these groups still fall some way short of the 20% target. It is a matter of

concern that the participation rate of African students' decreased slightly from 2013, and if this is a trend, it must be reversed. Conversely, the participation rates of Indian and White students are substantially above the 20% target. Continued attention has to be paid in improving the participation rate of African and Coloured students.

Female enrolments have increased and there are now more female than male students enrolled at universities. This trend is likely to continue, fuelled by the increasing number of females passing matric compared to male learners. The participation rate of females is greater than that of males among all groups which shows the impact of government policies.

Although there were more females than males at public HEIs who have some form of disability, just less than 1% of students enrolled in public HEIs reported to have one or the other form of disability in 2016.

Since 2005 enrolment in SET fields of study has increased more than enrolments in the Humanities. Though it took time to see this change, it is a significant change in terms of meeting the economic needs of a country that is becoming largely a knowledge economy.

While the race composition of students enrolled in SET has been changing rapidly, the change in terms gender has been slow. Males continue to dominate in this field of study. Although fewer females opt to enrol at university for SET, the proportion of females enrolling continues to improve.

The skills development environment will also need to improve. Over the period 2011-2016, 920 626 learners were enrolled for learnerships, internships, skills programmes and artisanal training of which most were enrolled through the MQA, FASSET and MERSETA. With the skills development institutional framework in place, in future more of the unemployed in the country will need to access skills development programmes.

Government policies are starting to have an impact, as institutions of higher education are in the process of producing more graduates. Graduations have increased especially since 1998 up to 2016.

Policy has also had an impact on graduation transformation. There were more female graduations than male graduations in each and every year since 1994. The proportion of African students graduating at universities has increased and the demographics have drastically changed to reflect the country demographics.

Graduations in fields of study have also changed. In 1994 over a third of students graduated in the humanities. However, since 2005, over a quarter of students graduated in SET fields of study and less than quarter graduated in each of the other main fields of study. Furthermore, the proportion of Africans graduating in SET fields of study has increased since 1994. The proportion of female graduates also started to surpass that of male graduates since 2014 up to and including 2016.

The country has done very well in increasing access, and its pro-poor policies have resulted in increased enrolments not only at universities, but have changed the university profile from largely being white to being reflective of the demographic profile of the country. Not only has the country seen an increased number of Africans, but increased enrolment in SET, including female graduates in SET. These great strides could not be achieved without concerted efforts in terms of policy changes, interventions and budgets to support pro poor approaches of government. While at

macro level there has been a huge progress, some challenges remain and need to be dealt with going forward.

The Gross enrolment ratio over a twenty year period has increased up to 2013 and has stagnated since then which is likely to be a sign of a system that is under capacity constraints, in terms of factors like infrastructure, funding and staffing. This presents a challenge in a knowledge based economy.

Subsequently, the efficiency and capacity in the PSET sector will be analysed to determine weaknesses that can be addressed the way forward.

6.7 EFFICIENCY IN THE POST-SCHOOL SECTOR

Access to PSET will increase if the PSET is more efficient. Subsequently an analysis of progress in throughput rates and drop-out rates in higher education and TVET colleges; registrations and certifications in SETA supported programmes; and completion of artisanal learning programmes.

6.7.1 Throughput and drop-out rates at higher education and TVET Colleges

In **Table 3** it is indicated that throughput for three year degrees at university has improved to some extent since 2000. Among the 2000 cohort, only 19% of students completed their three-year degree within three years. The throughput had improved to 27% among the cohort that had entered the system in 2013.

While the throughput rate has improved to 22% of students completing their three-year degree within three years, only 39% had completed their degrees by the fourth year. By year six, only 56% the students who had registered in 2010, had completed their three-year degree. This implies spaces in the university sector could be increased further if more students complete their degrees within the expected time. These delays are costly in terms of time and resources.

Table 3: Throughput rate for three year degrees

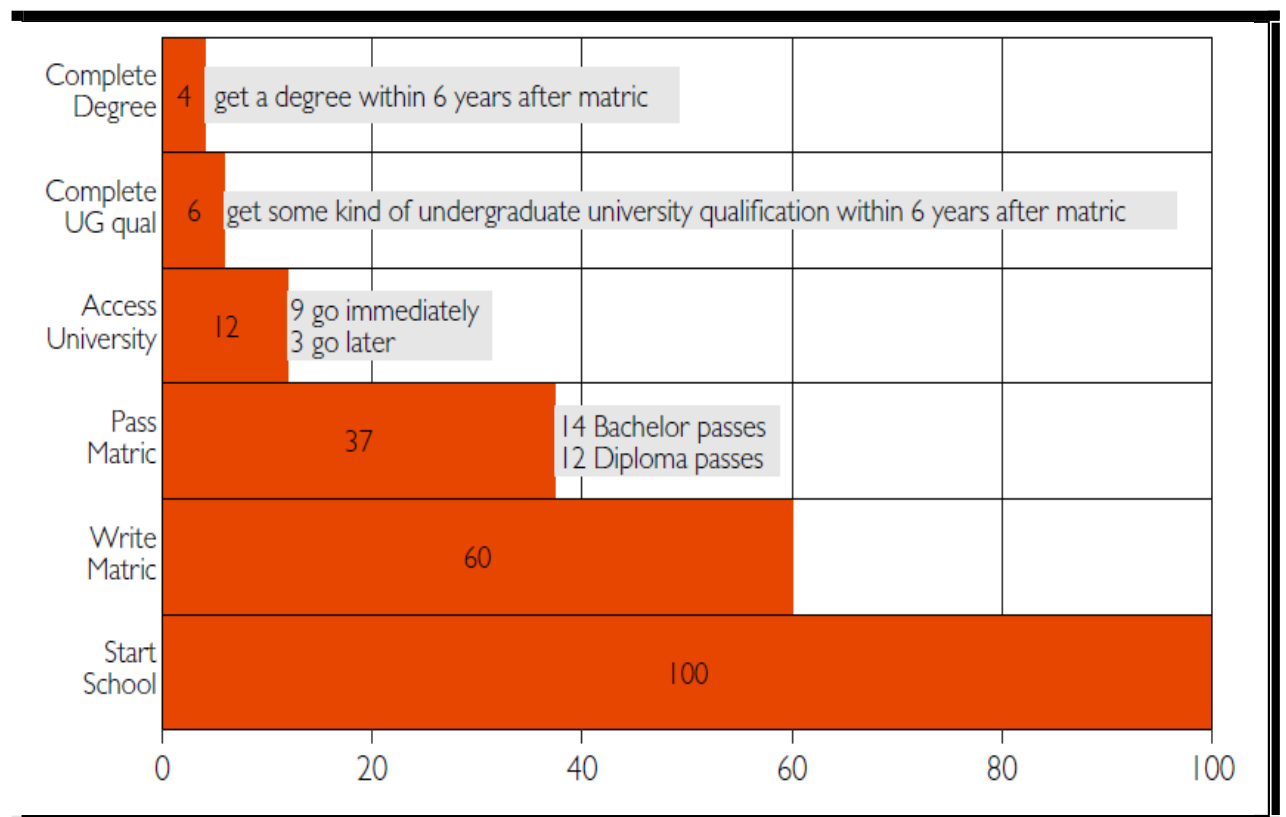
Intake year	Year of study							
	3	4	5	6	7	8	9	10
2000	19.2%	33.9%	42.7%	47.1%	49.7%	51.2%	52.4%	53.4%
2001	19.4%	32.6%	40.9%	45.2%	47.6%	49.2%	50.5%	51.4%
2002	19.3%	32.5%	40.8%	44.8%	47.2%	48.6%	49.7%	50.6%
2003	18.9%	32.9%	41.0%	45.3%	47.7%	49.3%	50.6%	51.6%
2004	19.7%	33.7%	42.4%	46.7%	49.3%	51.0%	52.3%	53.5%
2005	21.9%	37.1%	46.2%	50.7%	53.5%	55.1%	56.5%	57.6%
2006	20.3%	35.1%	44.4%	49.1%	51.9%	54.0%	55.8%	57.1%
2007	19.2%	34.0%	43.9%	49.0%	52.5%	54.7%	56.4%	
2008	20.5%	36.1%	46.2%	51.9%	55.3%	57.5%		
2009	18.8%	35.1%	46.0%	52.0%	55.7%			
2010	21.5%	39.0%	50.3%	55.8%				
2011	20.9%	38.0%	48.9%					
2012	22.9%	40.5%						
2013	26.6%							

Source: DHET 2017

Throughput rates differ by race, gender and whether the student is attending a contact or distance university. A DHET (2017) study on throughput shows that there is steady improvement in dropout rates, although many students still drop out before attaining their qualifications. For example, among female students who had registered for three-year degrees in 2000, 24% had dropped out by 2001, and by year ten, 38% of this cohort had dropped out. This trend has improved by 2006, with 22% of female students dropping out after one year, and 33% of this cohort dropping out ten years later. In the meantime, 26% of males had dropped out by 2001, and 43% had dropped out by 2009. For the 2006 first time entering male student cohort the dropout rate improved to 24.5% of the first time entering male student cohort dropping out, and 39% after 10 years. Overall first year dropout rate has improved from 25% in 2000, to 17% in 2014.

The study “Higher Education Access and Outcomes for the 2008 National Matric Cohort (Van Broekhuizen *et al* 2017) suggests that observed patterns of university access and university success are strongly influenced by school results. The weak school system has a major influence on who reaches matric, how they perform in matric and progress towards further studies. By looking at proportions it was found that for 100 students who start school, only 37 pass grade 12, of which 14 pass with a Bachelor pass. Out of the 100 who started school only 4 obtained a degree within six years of passing grade 12 (**Figure 17**).

Figure 13: Proportions of learners reaching matric and university



Source: Resep (2017)

Efficiency at TVET Colleges

There has been success in increasing access to the TVET sector, however, the efficiency with which qualifications are produced and challenges regarding the quality

of qualifications are matters of urgency. In addition, poor data systems aggravate the situation by making it difficult to determine the throughput rate in the TVET sector. An inadequate data system further contributes to certification backlogs to a certain extent which in turn impact negatively on employment prospects of students.

In interim the pass rate is used as a substitute for throughput, although it is not the ideal measure to determine the rate at which qualifications are produced at TVET colleges. Akojee *et al* (2008) refers to “pass rate” as the number of candidates who have succeeded out of the total who have actually sat for the exams. This measure, however, cannot tell how many students have dropped out or are still within the system. The data indicates that there was a slight decrease in the proportion of students (58%) that have passed their exams in 2000 compared to the proportion of students (57%) that have passed in 2002.

Table 4: Number of students in TVET Colleges who wrote, completed and the rate of completion. 2011-2016

Year	NC(V) Level 4				Report 190/1 N3				Report 190/1 N6			
	Number Wrote	Number completed	Completion Rate (%)		Number Wrote	Number completed	Completion rate (%)		Number Wrote	Number completed	Completion rate (%)	
2011	17 836	7 638	42.8		2 909	1 366	47.0		2 428	1 488	61.3	
2012	15 334	6 018	39.3		9 928	3 724	37.5		8 735	2 902	33.2	
2013	22 470	8 346	37.1		65 788	26 186	39.8		52 052	18 584	35.7	
2014	22 705	7 838	34.5		74 710	35 782	47.9		68 678	29 071	42.3	
2015	26 144	10 465	40		73 650	43 259	58.7		89 454	53 125	59.4	
2016	28 104	11 716	41.7		59 409	39 102	65.8		21 069	12 848	61	

Source: DHET Statistics for PSET, 2016

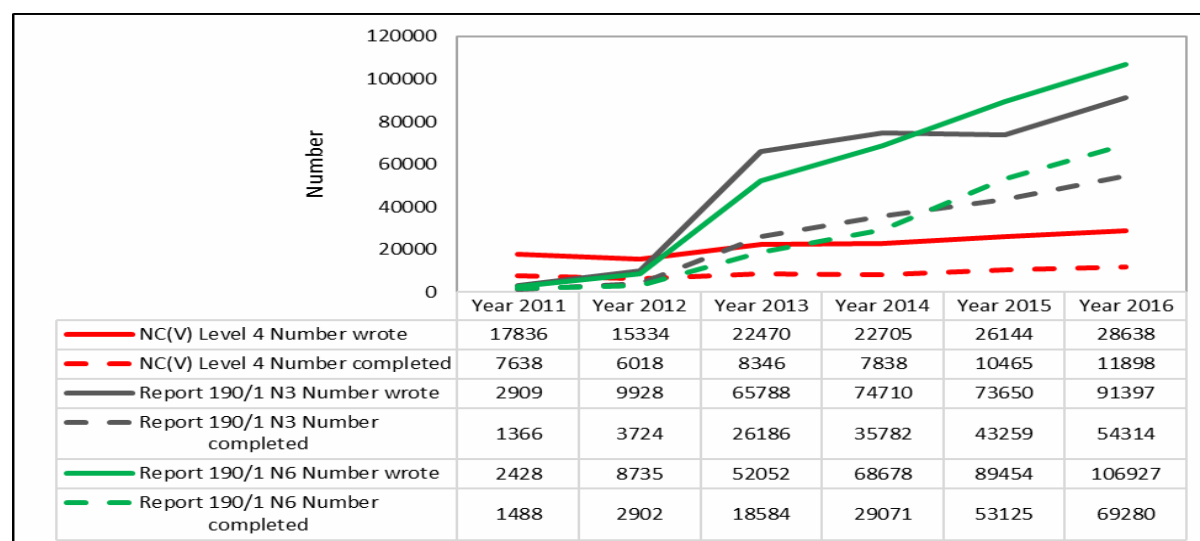
Positive is that the number of learners completing N6, has been increasing from 1 488 in 2011 to 12 848 in 2016, although it is worrying that the 2016 figure is a huge drop from 53 125 in 2015 (**Table 4**). Further research is required to determine the reason for this decline in the completion rate since 2015 and which could be as a result of a decline in the number of students who wrote. The National Curriculum (Vocational) [NC (V)] level 4 completion rate is on average lower than that of the N6 over the six years (2011-2016). Some of the reasons for this include poorly prepared learners from secondary school education who find it difficult to cope with the demands of the NC(V) qualification type. While others claim that it is the quality of the NC (V) which is too theoretical and that the curriculum does not meet the needs of the industry.

Figure 18, below shows the number students in TVET and private colleges who wrote and completed qualifications over the period 2011-2016. The trends reveal that for all qualification types; namely NC (V) Level 4, Report 190/1 N3 and Report 190/1 N6, the number of students who completed their qualifications consistently remained substantially lower than the number which wrote throughout the respective period under review.

There were fluctuations in the number of students that wrote and completed the three qualification types over the period 2011 to 2016. The number of students that

completed the Report 190/1 N3 recorded the highest growth rate (CAGR of 74.9%) over the period 2011-2016, while the number that wrote the Report 190/1 N3 recorded the second highest growth rate (CAGR of 65.3%) over the same period. The number of students that wrote and completed the Report 190/1 N6 recorded the third (CAGR of 43.4%) and fourth (CAGR of 43.2%) highest growth rate respectively over this period, while the number of students that wrote and completed the NC (V) Level 4 recorded the slowest growth over the period 2011-2016 with a CAGR of 7.9% and 7.4% respectively.

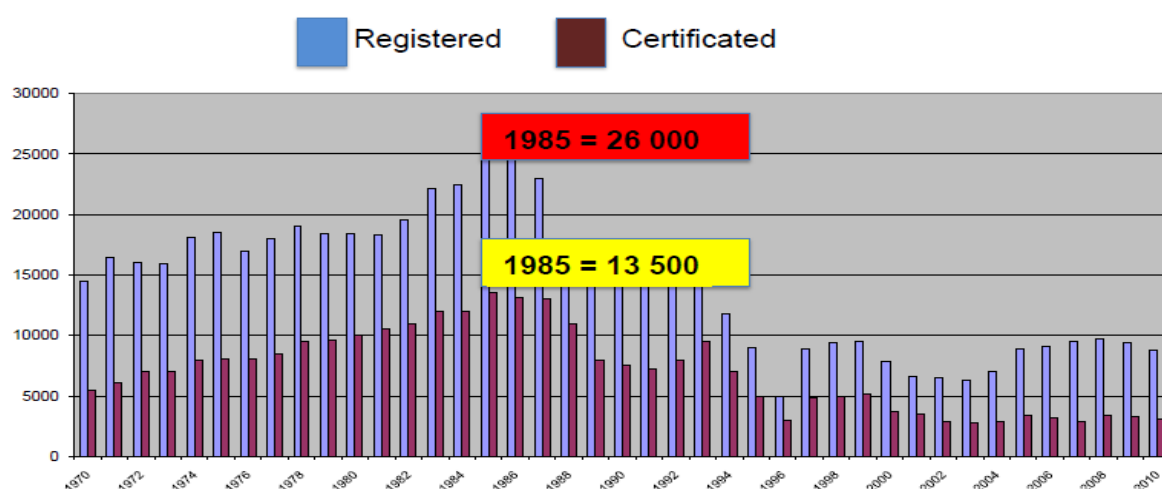
Figure 18: Number of students in TVET and private colleges who wrote and completed a qualification, 2011-2016



6.7.2 Completions in Artisanal programmes

The NDP has set a target of 30 000 qualified artisans per annum, however the number of artisans has declined to a low of 4 500 in 2005, increased again to over 20 000, but the country has not been able to reach the production of the high number of 30 000 artisans that were produced during the apartheid era (**Figure 19**).

Figure 14: Artisan registered and certificated over years (COTT+ INDLELA)



There were various pathways to follow with the aim in becoming an artisan, namely the traditional apprenticeship route; the learnership route; the NATED programmes which was replaced by the National Certificate (Vocational) or NC (V); and recognition of prior learning (RPL). No workplace learning was required to complete the NC (V) programmes. Employers increasingly called for a return to the traditional apprenticeship system. Since its inception in 2011, the new Quality Council for Trades and Occupations (QCTO) has worked towards a coherent framework for trade qualifications. The QCTO trade qualifications consolidated learnerships and relevant components of the NATED and NC (V) programmes into one integrated qualification per trade, each with a theoretical, practical and workplace component.

A National Artisan Development team was established to revive the artisan development system and the National Artisan Development Support Centre (NADSC) together with a National Artisan Website was launched in 2013. This system enabled reporting an increase in artisans certified by SETAs and INDELA from a low of 8 238 in 2009 to a high of 19 406 in 2017. Between the periods 2011/12 and 2016/17, the number of learners who completed artisanal learning programmes increased by 51% (7 175) from 14 023 during 2011/12 to 21 198 during 2016/17.

The statistics suggest a high likelihood that the Department can meet the NDP target for the production of 30 000 artisans per annum by 2030 if it continues to work within the current trajectory. The overriding challenge, however, is the availability of sufficient workplaces to absorb certified artisans. The additional solution thereto points to the need to increase the availability of training spaces particularly at state owned enterprises (SOEs) and local government municipalities. The National Artisan Development Strategy will also add an impetus to this effort towards meeting the envisioned NDP artisan target.

6.7.3 Efficiency in Community Education and Training

Provision of adult education was inadequate when the democratic government came to power. In response to the education and training skills, several non-formal community based initiatives were established, often donor funded. The adult literacy rate (comprising those 15 years of age and older) has risen from 14.6% in 1991 through 67% in 1996 to 89% in 2004. By 2005, there were 269 140 adult learners being serviced by 17 181 educators in 2 278 ABET institutions (DHET 2013).

The Public Adult Learning Centres (PALC) system remained under-resourced and ineffective with poor outputs; participation rates were estimated at 0.2% in 2012 (ETDP SETA 2012). ABET gradually faded along with a decline in the economy which lead to more job seekers who had completed only primary education or Grade 12. Subsequently, the *Green Paper* of 2012 and the *White Paper for Post-school Education and Training* of 2013 (DHET 2012, 2013a) proposed core-funded and well-staffed Community Colleges to run clustered Public Adult Learning Centres (or CLCs), and expand provision by offering formal and non-formal programmes.

6.7.4 Efficiency in Skills Development

Table 7 indicates the number of learners that have been placed in workplace learning programmes (learnerships, internships, skills programmes and work based learning) over a period of 6 years.

SETAs have registered 249 680 learners (workers and unemployed) in learning programmes since 2010 to 2016 (see Table 5). These skills programmes are short

courses that do not lead to effective employment. Out of these registered learners 180 998 (72% of the registered learners) were certificated over the period of 6 years.

Table 5: Number of unemployed and workers registered and certificated in SETA- supported learning programmes, 2011/12 - 2016/17

	Years					
	2011 /2012	2012 /2013	2013 /2014	2014 /2015	2015 /2016	2016 / 2017
	Registered					
Learnerships	43871	50885	75782	77931	94369	101447
Internships	3452	6127	8017	12006	13135	17216
Skills programmes	87906	74587	92508	137880	123593	131017
Total registered	135229	131599	176307	227817	231097	249680
	Certified					
Learnerships	29197	37158	38796	40891	43322	58080
Internships	878	2195	2510	3663	3352	6777
Skills programmes	87527	86491	109547	106459	127144	116141
Total certified	117602	125844	150853	151013	173818	180998

Source: DHET Statistics for PSET, 2016

These registered and certified numbers reflect a very bleak situation for the unemployed and those who are still studying and hoping to enter the world of work. With a shortage of work placements, exit strategies for the youth and unemployed are urgently required.

Although there is an absence of effective monitoring of what works and what does not work within the SETA and NSF environment, there is a general acceptance that very little real impact in the informal sector or on the employability of unemployed people has been achieved (Kraak *et al* 2008). However, learnerships and internships are two success stories of the skills system and have involved quite large numbers of unemployed people that have been absorbed into jobs in the formal economy, usually in medium and large companies, although emergent micro enterprises have generally not benefited (Kraak *et al* 2013).

There are many challenges facing SETAs which include: Funding which is accessed only through SETAs for workplace based learning (WBL), while some employers find it difficult to access the grant because of SETA bureaucracy, and they find WBL too expensive even with the SETA grant (Singizi 2016). Furthermore, some SETAs are with funds laying unallocated in context where training is desperately needed; the administrative systems are often too slow and inefficient and as a result, the flow of funds to intended beneficiaries has been frustratingly slow (up to four years); from the perspective of the state, too little attention has been paid to national priorities, ranging from supply-side priorities such as placement of graduates to priority occupations for national programmes; there is an inability of SETAs to identify skills needs, hence the need to establish credible mechanism for skills planning; too often fully private interests are played out through SETA board members, and have been allowed to over-ride the interests of the sector; thus resulting in inappropriate or corrupt grant allocations; the

balance between private and public interests has been unfairly skewed, with the levy, in the worst case scenario, becoming simply a top-up of fund for the public provider system; and a number of SETAs have been put under administration due to amongst others governance challenges, financial mismanagement etc., but too often the problems persist once an administrator leaves, hence there appears to be deep structural problems at play.

6.7.5 Efficiency incite access

Efficiency, at school level through to each and every post-school level, is the key in improving access to post-school education, as well as employment. The first step in improving access and throughput at post-school education is to improve the quality of basic education. Quality school education enables more learners to access post-school education and progress further, while quality post-school institutions attract more students. However, throughput from secondary school into tertiary education falls well below international levels (Reddy *et al* 2016). Five years of secondary schooling leads pupils to the Matric examination which if successfully achieved, enables pupils to enter university. Only about 10 per cent of pupils achieve this while 90 per cent exit the school system with poor qualifications (Maringe and Osman 2016). Related to this is a study of a 2008 university cohort which shows that only 37% of learners who start school, pass Grade 12, while 12% of learners who start school, access higher education within six years of matriculation and only 4% complete a degree qualification. Those who do gain access to PSET often take a long time to complete their studies, with many never completing at all (van Broekhuizen *et al* 2017).

This inference is supported by another study exploring youth transitions over a period of five years (Isdale *et al* 2018) where it was found that the key in improving opportunities for accessing post-school and throughput across the system, is getting the foundations of literacy and numeracy right in the earliest grades for all learners. The study further established that if learners can reach Grade 9 without difficulty, the throughput of successful learners to Grade 12 and beyond will increase. The findings also demonstrate that social advantage; operating particularly through school-level characteristics remains an important predictor of learner transitions (although there are some socially disadvantaged learners who defy the odds). Learners from no-fee, public quintile 2-3 schools for instance stay in school over a longer period than learners from fee-paying and independent schools. Similar, the study by van Broekhuizen *et al* (2016) found that matriculants from the poorest three school quintiles were slightly less inclined than average to gain university access. Learners from quintile 1-4 schools bring disadvantages into higher education and the labour market. Greater support is needed to support students from low quintile schools, to be able to make transitions to employment even after getting degrees.

There are various reasons why learners do not proceed to post-school education which include a mismatch between Grade 12 qualifications and the jobs available in the labour market and financial barriers that prevent further study (Isdale *et al* 2018). There is a lack of information regarding post-school options, such as academic, technical, vocational and trade routes, especially at 1-4 quintile schools; limited places at universities and TVET Colleges; and poor support systems. There are a number of institutions with programmes that identify and mentor promising learners from disadvantage secondary schools to gain access to courses, but success depends on the subsequent support that are provided. Most universities also provide at least one

academic support programme per faculty, although this is not standardised within or across institutions. However, there is limited monitoring and evaluation to determine efficacy of these programmes. Although a programme at the University of Cape Town was found to improve first-year rates, it had no impact on final graduation rates. Programmes such as MOT in some TVET colleges have made a difference in student attitudes to learning, confidence and self-esteem (Branson and Hofmeyr 2015).

One of the Labour Market Intelligence Partnership (LMIP) studies (Rogan and Reynolds 2015) that followed graduates from 2010 and 2011 cohorts at Rhodes and Fort Hare universities found school background, race and gender to be significantly associated with successful career choices and the risk of unemployment. The study revealed that black graduates, from low quintile schools, were significantly less likely to graduate with their first choice degree, especially in SET. The study also concluded that women from low quintile schools were most likely to face unemployment.

While the throughput rates and drop-out rates in higher education has improved to some degree, more students need to complete their degrees within the expected time. There also has been success in increasing access to the TVET sector, however, the efficiency with which qualifications are produced and challenges regarding the quality of qualifications are matters of concern. Positive is that completions in artisanal learning programmes have increased recently which suggest a high likelihood that the NDP target for the production of 30 000 artisans per annum by 2030 could be met if it continues to work within the current trajectory. The overriding challenge, however, is the availability of sufficient workplaces to absorb certified artisans.

Conversely, efficiency in the PALC system remained under-resourced and ineffective with poor outputs and the decline in the economy lead to more job seekers who had completed only primary education or Grade 12. Subsequently, it was proposed that core-funded and well-staffed Community Colleges run clustered PALCs that can contribute future efficiency. Also in the realm of skills development, there is considerable scepticism over the relevance and effectiveness of SETA programmes being offered and funded. Some programmes are offered at very high costs and SETAs has a reputation of being wasteful of resources and being ineffective. It is a concern that no evidence to contest this can be provided by the SETAs, the NSF or DHET. Monitoring and evaluation in the system has been extremely weak, which means genuine accountability is not possible. Intervention is required if there is an underperformance (Kraak *et al* 2013).

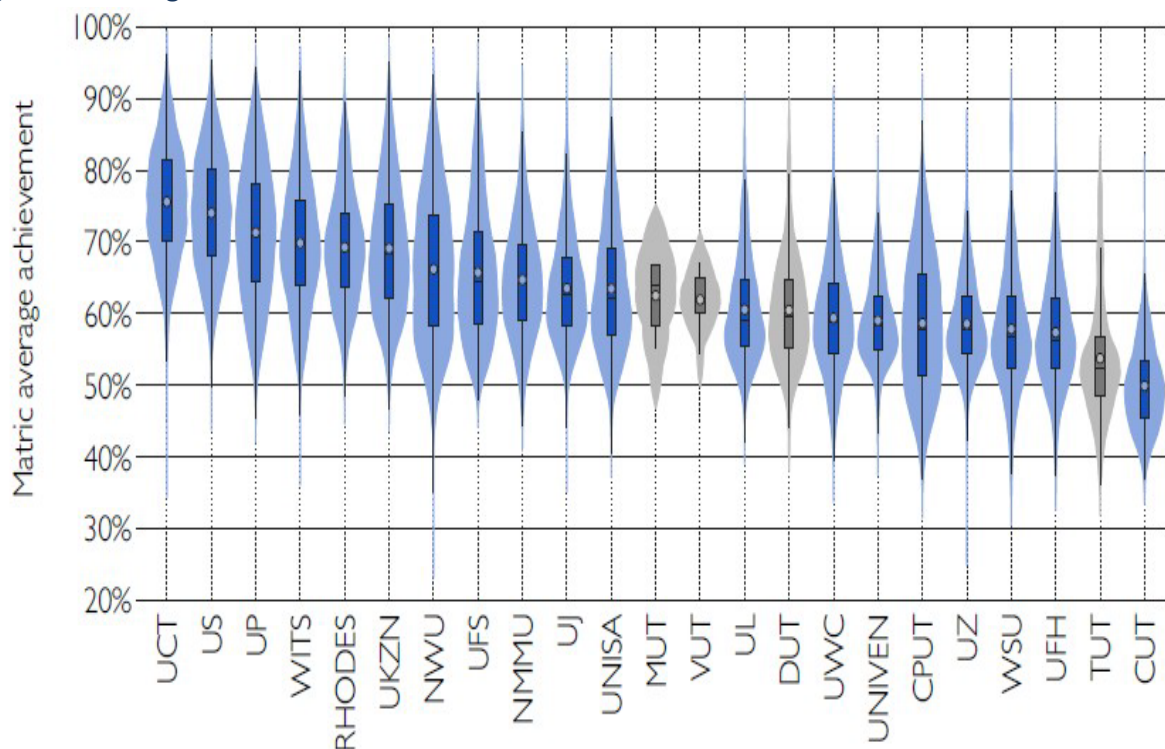
In addition, the image of post-school institutions impacts on the choice of students when choosing a post-school institution to study at. TVET Colleges are viewed as being less prestigious than universities, and are frequently associated with poorly performing students. The TVET sector qualifications are not fully embraced by the labour market and weak systems such as data systems resulting in certification backlogs have not improved the image of TVET colleges. This could be as a result of the fact that TVET colleges remained seriously underfunded in comparison with the much larger university sector (Land and Aitchison 2017). Despite attempts by government to make TVET Colleges the 1st institution of choice, more often than not, only those students who are not accepted (or not likely to be accepted) by universities, enrol at TVET colleges. This phenomenon is likely to improve only once TVET college graduates are seen to access employment or self-employment to a greater extent and are seen to earn relatively good salaries (Fisher and Simmons 2012). This cannot take place

without a concerted effort to improve the quality of qualifications and their relevance to industry.

This same line of reasoning is put forward with regard to historically black universities. It is argued that former privileged universities are able to attract students with higher matric averages compared to historically black universities and universities of technology. About 60 per cent of the less advantaged students who enter university are unable to complete their studies due to failure, dropping out and severe underperformance, while for those who make it through, the degree outcomes are such that employers question the quality of the learning (Maringe and Osman 2016).

This perpetuates class inequality and creates the perception that certain institutions produce poor quality graduates (**Figure 20**). There is a need to improve both the administration and performance of the historically disadvantaged universities which will enable them to produce qualifications and graduates that are respected in the labour market and are able to compete with historically advantaged institutions in attracting good quality students. The country needs more world class universities.

Figure 15: Average matric access for 2008 cohort

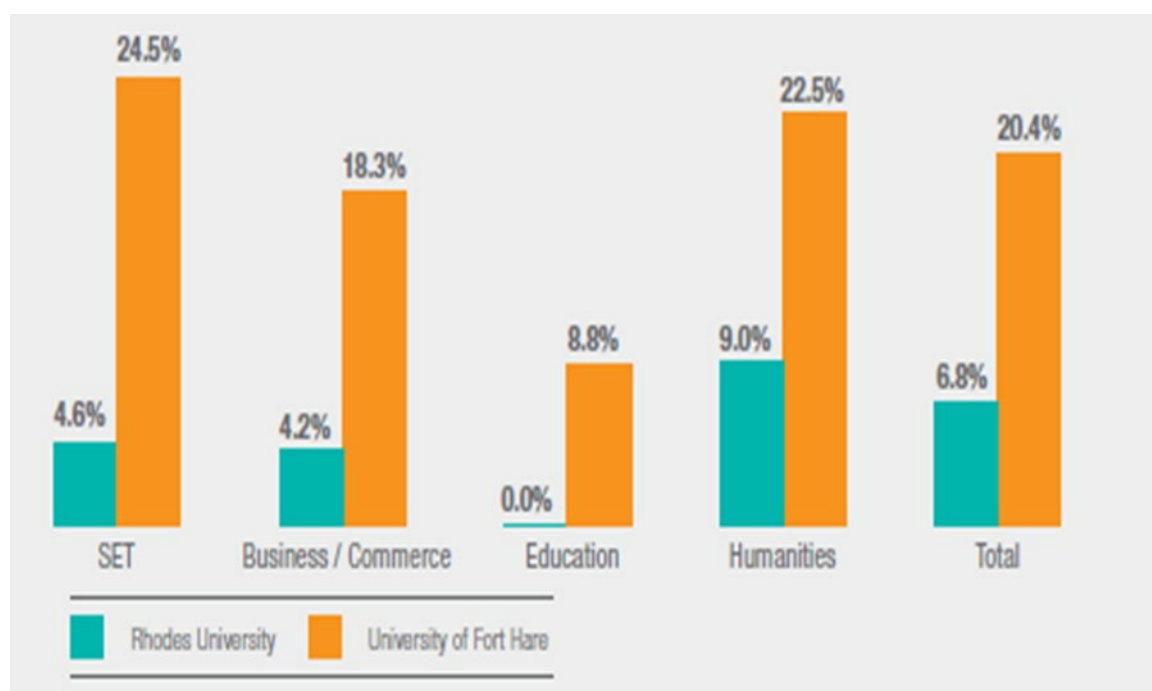


Source: Resep 2017

There is significant variation in unemployment levels between Rhodes and Fort Hare graduates. The unemployment rate for Fort Hare graduates (20%) was almost three times higher than that of Rhodes graduates (7%). Accessing a post-school institution does not guarantee employment after completion of studies, but the qualification as well as the specific post-school institution attended, plays a role in a successful future career. It is therefore important that a concerted effort is made to improve the reputation and output quality at each and every post-school institution, especially those that were historically disadvantaged.

In all fields of study, Fort Hare students are more likely to be unemployed (**Figure 21**). Rhodes graduates have a better chance to find employment in the private sector, while Fort Hare graduates are more likely to find employment in the public sector.

Figure 16: Broad unemployment in 2015



Source: LMIP (2015)

In order to be efficient and enable access, there must be articulation between secondary school and post-school institutions, as well as between post-school institutions themselves and qualifications within post-school institutions. The following paragraphs will address articulation and then the resources required to improve quality education and training.

6.7.6 Articulation

“The fundamental governing principle for a post-school education system must be to enable access to educational and training opportunities further to the level of basic education achieved by any school-leaver, irrespective of race, gender, or social and economic circumstances” (HESA 2011). In order for this to happen, there must be articulation between secondary school qualifications and the post-school system. Currently the school sector is generating insufficient numbers of matriculants who are adequately prepared for enrolment in post-school education (StatsSA 2015a). Successful educational transitions are thus a challenge. SAQA (2017) indicates that career development advice from the very early stages of learning pathways is crucial, whether at school, TVET College, Community College, HEI or wherever there are transition points. The ‘FET Colleges Act of 2006’ made provision for TVET colleges to partner with universities, something previously not possible under the Higher Education Act of 1997 (SAQA 2018).

Achievements in articulation

At the NQF ‘Researcher Seminar on Understanding the National Articulation Baseline Study Findings’ in 2018 (SAQA 2018), various presentations indicated that although there was a need to still strengthen the existing system of collaboration and

communication between institutions, there was a range of articulation successes. For example, the Limpopo Provincial Initiative indicated successes in widening access to prospective students through different articulation pathways, institutionalising the University's Recognition of Prior Learning (RPL) policy, and training staff to provide RPL. Another success is the successful transitioning and employment of students who completed their Higher Certificates in ICT at a TVET college and obtained entrance into the Diploma in ICT.

The findings showed that 17 TVET colleges and 11 HEIs have formal articulation arrangements in place, but more TVET colleges, 25, have informal arrangements and only six HEIs reported informal arrangements (some institutions reported more than one articulation arrangement). The type of articulation arrangements reported included those between HEIs and TVET colleges; HEIs and the workplaces; TVET colleges and workplaces; TVET colleges, HEIs and workplaces; TVET and international institutions; and HEIs and NGOs (SAQA 2018). Articulation routes for example include moving from a National Diploma into a Bachelor's degree or from a Higher Certificate to a National Diploma and then to a Bachelor's degree according to arrangements between colleges and universities. One successful arrangement has for instance been established where the College of Cape Town (CCT) offers the degree on behalf of UNISA (SAQA 2018). While arrangements were in place, there are still challenges with articulation as will be discussed in paragraph 6.2.

Under an established NQF, three further frameworks, each with its own quality council were developed. Umalusi, the Council for Quality Assurance in General and Further Education and Training, sets and administers external examinations in general, and further education and training (including TVET and ABET). Under the Higher Education Qualifications Sub-Framework (HEQSF), higher education institutions continued to issue qualifications and design their curricula. A new council – the Quality Council for Trades and Occupations (QCTO) - was established to oversee the awarding of vocational qualifications, most notably learnerships.

Critical for articulation between institutions are resources, including funding to support articulation. The National Articulation Baseline Survey Results and Reflections (SAQA 2017) identified the following further enablers of articulation between institutions:

- The development of collaborative relationships;
- the role of entities such as private colleges, NGOs, provincial structures, and employers are important especially in the provision of work placements;
- formal articulation agreements;
- inclusive admission criteria which includes admitting learners with N4-6 and NCV4, as well as with National Senior Certificate (NSC) qualifications, providing Recognition of Prior Learning (RPL), and admitting learners without these NQF Level 4 qualifications when they are over 23 years of age;
- The quality of teaching and learning, and learner achievement levels – where the quality of provision includes a range of types of learner support, and the scaffolding of the content of learning within and between learning offerings;
- Articulation focussed on particular learning pathways/fields/transition points – such as transitioning between N4-6 programmes and cognate learning programmes in HEIs, and others. Survey responses indicated the importance of keeping the NATED qualifications.

Articulation between CET Colleges and other post-school entities

The *National policy on Community Education and Training Colleges* which was gazetted in 2015 (DHET 2015a) stated that community colleges should work in collaboration and articulation with other sections of the post-school system. Community college programmes should wherever possible articulate with further education and employment opportunities, as well as retrospective articulation with schooling. It has been suggested that cooperation between institutions should be incentivised or supported with earmarked funding (HESA 2011, Cloete 2009 and Lolwana 2009). Cooperation could include the franchising of university programmes (e.g. certificate programmes at NQF level 5), the offering of access or bridging (foundation) programmes, co-teaching and assessment of HE programmes in colleges, the development of articulation pathways, the building of capacity, collaborative research, and common links to communities, businesses and industries (HESA 2011, p.7). An integrated post-school education and training system can further be realised if Adult and Community Education and Training (ACET) is recognised as part of continuing education and training in the PSET sector, including the overlaps and articulation of ACET with technical and vocational education and training and higher education and training (DHET 2015b p. 10).

In view of the overwhelming numbers of people between 18 – 24 years of age in the NEET category, Community Colleges should be designed to offer learning pathways or single courses that are particularly attractive and practically useful especially to this group (DHET 2012b). Furthermore, Lolwana (2009) advocates re-organising the education system to retain young people in education for longer, but the goal in this must be to better empower them, rather than simply to keep them out of the NEET category. A post-school education system must offer learning pathways to potential learners who have left school without achieving a Senior Certificate, or a vocational certificate that allows them access to further training, or who have not met entrance requirements for HEIs, or who do not have a basic educational platform for post-secondary education (HESA 2011). In addition it must also accommodate adults who are working or not working and need extra training, or wish to enrol and learn. Regulations in this system should be facilitative rather than restrictive, opening pathways rather than closing them (SAQA 2001).

It would make sense for Community Colleges to establish and maintain strong links with schools, other colleges (both public and private) and popular education initiatives in their areas, and with departments in higher education institutions who sometimes have particular strengths in popular citizen and community education. Following from this, a worthwhile investment of public funds would be in articulation programmes among institutions.

It should be noted that HESA questions whether the establishment of three separate quality councils established by the NQF Act 67 of 2008 (HEQF, QCTO and Umalusi) can facilitate articulation between different South African education and training sectors, and suggests that an understanding of all the different types of institution in a region is necessary to foster inter-institutional cooperation and articulation (HESA 2011). This will become especially important if open and distance modes of delivery expand, since quality must be assured in all forms of delivery (DHET 2013b).

If quality assurance mechanisms are rigorous and coherent and include evaluations of the work of educators or lecturers, people will be assured of the quality and relevance of the education and training offered by Community Colleges and facilitate articulation between post-school institutions (HESA 2011).

Articulation challenges

There is still some resistance to articulation between institutions, as some institutions do not permit admission to those with NC (V) qualifications which was introduced at TVET colleges in 2007. The NC (V) is a general vocational programme which includes both academic and vocational subjects. The intention was that these programmes would replace the N-programmes. Although the NCV curriculum does include extensive practical components (based in workshops rather than workplaces), they have not been implemented in many colleges. As a result, learners often exit these programmes without the necessary practical skills.

One of the main criticisms of the NCV has been its confusing admission policies. Originally meant for young people completing Grade 9, it began to allow, and even to encourage, learners who had finished schooling levels up to the National Senior Certificate (NSC). This has made life difficult for lecturers, who must deal with students with vastly different educational levels in the same class. The Department changed its admission policy into NCV programmes to admit only those students who did not complete matric. Consequently, many students who complete Grade 9 in schools now enrol in the NCV programmes, whilst those who have completed matric enrol in N4 programmes. This relatively new shift in policy attempts to reduce inefficiencies in the education system as a whole.

There seems to be a mismatch between some qualifications and the need in the labour market. There are some employers who for instance indicated that the N-programme curricula are outdated. Curricula alignment with the needs in the industry is taking place, but with a slow pace (SAQA 2018).

Further challenges with regard to articulation between TVET colleges and universities include: A perceived lack of equivalence between the feeder qualifications, and what is required in higher education institutions; limited resources; work placement issues; student support-related issues; inadequate funding; limited institutional structures; the late release of TVET results; staff at some institutions not knowing how to use National Benchmark Test (NBT) results; some students transitioning from colleges to higher education struggle with workload (especially reading and written assignments), while doing well in practical components; late certification of college results; a commonly held perception that educational standards are poor at TVET Colleges; some assessors lack subject knowledge; differences between a rural and urban learning and teaching context; powerful online systems are required especially between distance learning institutions; and a lack of quality lecturing at some institutions (SAQA 2018).

Challenges in improving efficiency

Without an effective quality basic education, the post-school education and training sector will not reach its full potential. Therefore, a general recommendation is for the Basic Education sector to improve as a matter of urgency.

In a recent Innovation Index South Africa was one of the lowest-ranked countries when it comes to 'tertiary efficiency'. Efficiency in all PSET levels must be addressed by increasing throughput, drop-out rates, capacity, infrastructure, and funding towards this end.

In the Innovation Index South Africa also performed poorly in the ‘researcher concentration’ metric, which measures the number of professionals in the country who are engaged in research and development. In order to stay competitive and grow the economy, the country needs highly skilled professionals who are innovative, add value, and create work opportunities and employment for many others in the country. Higher education needs to produce more PhD graduates and invest more in research.

While the throughput rates and drop-out rates in higher education has improved to some degree, more students need to complete their degrees within the expected time. Therefore efficiency at school level needs to be addressed and student support at universities needs to improve further. This entails the improvement of foundation face literacy and numeracy at primary school level; the stimulation of an interest in Mathematics to open up more study options; and the introduction of career guidance, especially in socio-economically disadvantaged schools.

Greater support is needed to support students from low quintile schools and enable them to make the transition from school to higher education and employment upon obtaining a qualification.

Improve support in programmes that identify and mentor promising learners from disadvantage secondary schools to gain access to courses.

Improve academic development programmes at higher education institutions to support and ease the transition from school, especially in coping with work load as a result of increased quantity and level of difficulty.

Academic support programmes at universities need to be standardised within and across institutions.

Monitoring and evaluation need to determine efficacy of support programmes at institutions.

Improve both the administration and performance of the historically disadvantaged universities to enable them to produce qualifications and graduates that are respected in the labour market.

Poor data systems makes it difficult to determine accurate throughput rates in the TVET sector and contributes to certification backlogs which impact negatively on employment prospects of students. Proper state-of-the-art data systems at TVET colleges need to be put in place in order to provide accurate data in assuring efficiency.

In all qualification types (NC (V) Level 4, Report 190/1 N3 and Report 190/1 N6) the number of students who completed their qualifications consistently remained substantially lower than the number which wrote throughout the respective period that were under review. Firstly, the quality of education at school level needs to be addressed and secondly, lecturing capacity at colleges needs to be improved to support students appropriately.

The estimated throughput of 10% of the TVET colleges system, coupled with estimated high drop-out rate means more learners fail to realise their potential. The drop-out at first year means young people join the ranks of NEET even after investing 12 years of their lives in education. Foundation courses at TVET colleges are needed to support learners and ensure that a higher percentage obtains their qualifications.

Positive is that the number of learners completing N6 at TVET colleges has been increasing, but N-programmes need to be aligned with industry needs.

The NC(V) level 4 completion rate is on average lower than that of the N6 as a result of poorly prepared learners from secondary school education who find it difficult to cope with the demands of the NC (V). Efficiency at school, career guidance, support to students and better articulation between secondary school curriculum and NC (V) is required.

Complaints are also raised with regard to the quality of the NC (V) qualification which is too theoretical without meeting the needs in the industry. More industry input in curriculums is necessary.

Increase financial support via NSFAS bursary allocations, especially to study at TVET colleges.

Improve the image of TVET colleges among secondary school learners, especially by promoting artisanal study options; by improved qualifications according to industry needs; and address backlogs in certifications.

Unattractiveness of TVET college qualification to employers, making it difficult for young people to opt for TVET qualification. This coupled with the higher probability of being unemployed as TVET graduate compared to university graduate, makes the TVET colleges unattractive. DHET is establishing centres of excellence which are displaying how colleges are to work with private sector in curriculum development and work experience. Lessons learnt in these arrangements will be extended to all colleges.

Lessons learnt from the first selected Centres of Excellence programmes should be expanded to all TVET colleges and adapted for rural colleges.

Protocols for work exposure for TVET College lecturers are needed, to ensure every lecturer is exposed to work environment. Protocols should include processes that allow private sector employees to work in the TVET colleges. All TVET Colleges with limited economic activity in their area such as in rural areas must have simulation training working together with SETAs and industry.

The number of learners who completed artisanal learning programmes have increased and the suggestion is a high likelihood that the Department can meet the NDP target for the production of 30 000 artisans per annum by 2030 if it continues to work within the current trajectory. Sufficient workplace opportunities, however, needs to be arranged to realise completion of qualifications. Availability of training space at state owned enterprises and local government municipalities need to be considered.

Public TVET Colleges must be proclaimed as the main training provider for large-scale artisan training.

The TVET College Council to include representatives from local businesses and SETA CEOs going forward

By funding and increasing capacity at Community Colleges, provisioning of formal and non-formal programmes can be improved to run clustered Public Adult Learning Centres (or CLCs).

With the skills development institutional framework in place, in future more of the unemployed in the country will need to access skills development programmes.

Although there has been some success with learnerships and internships in absorbing unemployed people into the formal labour market, SETA registered and certified numbers do not look good and skills development programmes are currently failing the

youth of this country. With a shortage of work placements, exit strategies for the youth and the unemployed are urgently required and government needs to make arrangements to address national development challenges or incentivise this area of need.

There is an absence of effective monitoring of what works and what does not work within the SETA and NSF environment. Monitoring and evaluation need to be put in place to determine the impact of skills development initiatives.

Indicators and measures need to be put in place to assess whether the value obtained matches the investment that was made in SETAs.

At higher education and training increased training in STEM subjects and investment in Information and Communication Technologies (ICTs) will be required in light of a fourth industrial revolution. Curriculums need to articulate between STEM and the humanities.

There are known transitioning barriers between PSET institutions and in order to be efficient and enable access, articulation between secondary school and post-school institutions, as well as between post-school institutions and qualifications within post-school institutions needs improve.

Resistance of some PSET institutions to permit admission to those with NC (V) qualifications needs to change. The intention was that these programmes would replace the N-programmes. Although the NCV curriculum does include extensive practical components they have not been implemented in many colleges.

Practical skills in workshops and workplaces need to be secured to enable learners to exit programmes such as NC (V) qualifications.

There are some employers who indicated that the N-programme curricula are outdated. Curricula alignment with the needs in the industry needs to speed up.

Equivalence between feeder qualifications must be assured to improve articulation between TVET colleges and universities.

It must be assured that assessors have sufficient subject knowledge.

Powerful online systems are required, especially between distance learning institutions.

Curriculums need to develop both technical skills concurrently with an awareness of ethical responsibilities with an approaching fourth industrial revolution.

Because of globalisation and increased competition from established economies, a strategic adoption of technology is essential in ensuring that the workforce is adequately equipped for change brought on by the fourth industrial revolution;

To sustain the ongoing rapid technological advances that will impact on the workforce, lifelong learning is paramount.

Community college programmes should articulate with TVET college qualifications, as well as employment opportunities, but retrospectively also with schooling.

Cooperation between Community Colleges and other PSET institutions should be incentivised or supported with earmarked funding.

Cooperation between Community Colleges and other PSET can include the franchising of university programmes (e.g. certificate programmes at NQF level 5), the

offering of access or bridging (foundation) programmes, co-teaching and assessment of HE programmes in colleges, the development of articulation pathways, the building of capacity, collaborative research, and common links to communities, businesses and industries.

An integrated post-school education and training system can be realised if Adult and Community Education and Training (ACET) is recognised as part of continuing education and training in the PSET sector, including the overlaps and articulation of ACET with technical and vocational education and training and higher education and training.

In view of the overwhelming numbers of people between 18 – 24 years of age in the NEET category, Community Colleges should be designed to offer learning pathways or single courses that are particularly attractive and practically useful especially to this group.

Programmes for NEETS should especially include entrepreneurship components and where possible, also entrepreneurial experience opportunities which will increase the possibility of future success in running SMMEs. Informal traders function mainly as survivalists and there is a need to provide them with generic business skills in order to be able to generate more income.

The education system, especially the CET sector, should be re-organised to retain young people in education for longer, but the goal in this must be to better empower them, rather than simply to keep them out of the NEET category.

The CET system must offer learning pathways to potential learners who have left school without achieving a Senior Certificate, or a vocational certificate that allows them access to further training, or who have not met entrance requirements for HEIs, or who do not have a basic educational platform for post-secondary education.

The CET sector must also accommodate adults who are working or not working and need extra training, or wish to enrol and learn. Regulations in this system should be facilitative rather than restrictive, opening pathways rather than closing them.

A worthwhile investment of public funds would be in articulation programmes among institutions. It would make sense for Community Colleges to establish and maintain strong links with schools, other colleges (both public and private) and popular education initiatives in their areas, and with departments in higher education institutions who sometimes have particular strengths in popular citizen and community education.

Knowledge of all the different types of institution in a region is necessary to foster inter-institutional cooperation and articulation, especially if open and distance modes of delivery expand, since quality must be assured in all forms of delivery.

Quality assurance mechanisms need to be rigorous and coherent and include evaluations of the work of educators or lecturers in order to assure people of the quality and relevance of education and training offered by Community Colleges and facilitate articulation between post-school institutions.

Summary

Access to PSET will increase if the PSET is more efficient. Space in the university sector could be increased further if more students complete their degrees within the

expected time. Delays are costly in terms of time and resources. Throughput rates differ by race, gender and whether the student is attending a contact or distance university. Research has found that overall first year dropout rates have improved. Among females the drop-out rate has improved to some extent for three-year degrees, while the drop-out rate for three-year degrees has also improved among males, the improvement was slower. Further research suggests that observed patterns of university access and university success are strongly influenced by school results. The weak school system has a major influence on who reaches matric, how they perform in matric and progress towards further studies.

There has been success in increasing access to the TVET sector, however, the efficiency with which qualifications are produced and challenges regarding the quality of qualifications are matters of urgency. In addition, poor data systems aggravate the situation by making it difficult to determine the throughput rate in the TVET sector. An inadequate data system further contributes to certification backlogs to a certain extent which in turn impact negatively on employment prospects of students. The data indicates that there was a slight decrease in the proportion of students that have passed their exams at TVET colleges in 2000 compared to the proportion of students that have passed in 2002.

The trend of students at TVET and private colleges who wrote and completed qualifications over the period 2011-2016 for all qualification types; namely NC (V) Level 4, Report 190/1 N3 and Report 190/1 N6, indicated that the number of students who completed their qualifications consistently remained substantially lower than the number which wrote throughout the respective period under review.

The NDP has set a target of 30 000 qualified artisans per annum, but this target could not be reached as yet, since the demise of the apartheid system. However, with the new NADSC in place it was possible to determine an increase in artisans certified by SETAs and INDELA from a low of 8 238 in 2009 to a high of 19 406 in 2017. The statistics suggest a high likelihood that the Department can meet the NDP target for the production of 30 000 artisans per annum by 2030 if it continues to work within the current trajectory. The overriding challenge, however, is the availability of sufficient workplaces to absorb certified artisans. The additional solution thereto points to the need to increase the availability of training spaces particularly at state owned enterprises (SOEs) and local government municipalities. The National Artisan Development Strategy will also add an impetus to this effort towards meeting the envisioned NDP artisan target.

Registered and certified numbers of workers and unemployed people at SETAs reflect a very bleak situation for the unemployed and those who are still studying and hoping to enter the world of work. Although 72% of the registered learners were certified over the period of 6 years, it is only a drop in the ocean of unemployment and young people that still need to access the world of work. With a shortage of work placements, exit strategies for the youth and unemployed are urgently required.

Although there is an absence of effective monitoring of what works and what does not work within the SETA and NSF environment, there is a general acceptance that very little real impact in the informal sector or on the employability of unemployed people has been achieved. However, learnerships and internships are two success stories of the skills system and have involved quite large numbers of unemployed people that have been absorbed into jobs.

There are many challenges facing SETAs. Some employers find it difficult to access the grants, because of SETA bureaucracy, and they find WBL too expensive. In addition SETAs are with funds lying unallocated in context where training is desperately needed; too little attention has been paid to national priorities, ranging from supply-side priorities such as placement of graduates to priority occupations; inappropriate or corrupt grant allocations; governance challenges, financial mismanagement etc. There appears to be deep structural problems at play.

Efficiency, at school level through to each and every post-school level, is the key in improving access to post-school education, as well as employment. The first step in improving access and throughput at post-school education is to improve the quality of basic education. Throughput from secondary school into tertiary education falls well below international levels. Only 37% of learners, who start school, pass Grade 12, while 12% of learners who start school, access higher education within six years of matriculation and only 4% complete a degree qualification. Those who do gain access to PSET often take a long time to complete their studies, with many never completing at all.

Learners from quintile 1-4 schools bring disadvantages into higher education and the labour market. Greater support is needed to support students from low quintile schools, to be able to make transitions to employment even after getting degrees.

There are various reasons why learners do not proceed to post-school education which include financial barriers that prevent further study; a lack of information regarding post-school options; and poor support systems. Most universities provide at least one academic support programme per faculty, although this is not standardised within or across institutions.

While the throughput rates and drop-out rates in higher education has improved to some degree, more students need to complete their degrees within the expected time. There also has been success in increasing access to the TVET sector, however, the efficiency with which qualifications are produced and challenges regarding the quality of qualifications are matters of concern. Positive is that completions in artisanal learning programmes have increased recently which suggest a high likelihood that the NDP target for the production of 30 000 artisans per annum by 2030 could be met if it continues to work within the current trajectory. The overriding challenge, however, is the availability of sufficient workplaces to absorb certified artisans.

Efficiency in the PALC system remained under-resourced and ineffective with poor outputs. Subsequently, it was proposed that core-funded and well-staffed Community Colleges run clustered PALCs that can contribute future efficiency. Also in the realm of skills development, there is considerable scepticism over the relevance and effectiveness of SETA programmes being offered and funded. Monitoring and evaluation in the system has been extremely weak, which means genuine accountability is not possible.

In addition, the image of post-school institutions impacts on the choice of students when choosing a post-school institution to study at. TVET Colleges are viewed as being less prestigious than universities, and are frequently associated with poorly performing students. This is likely to improve only once TVET college graduates are seen to access employment or self-employment to a greater extent and earn relatively good salaries. This cannot take place without a concerted effort to improve the quality of qualifications and their relevance to industry.

This same line of reasoning is put forward with regard to historically black universities. It is argued that former privileged universities are able to attract students with higher matric averages compared to historically black universities and universities of technology. It is therefore important that a concerted effort is made to improve the reputation and output quality at each and every post-school institution, especially those that were historically disadvantaged.

In order to be efficient and enable access, there must be articulation between secondary school and post-school institutions, as well as between post-school institutions themselves and qualifications within post-school institutions. HESA indicated “The fundamental governing principle for a post-school education system must be to enable access to educational and training opportunities further to the level of basic education achieved by any school-leaver, irrespective of race, gender, or social and economic circumstances”. Successful educational transitions are a challenge career development advice from the very early stages of learning pathways is crucial, whether at school, TVET College, Community College, HEI or wherever there are transition points.

Although there was a need to still strengthen the existing system of collaboration and communication between institutions, there was a range of articulation successes. The findings show that 17 TVET colleges and 11 HEIs have formal articulation arrangements in place, but more TVET colleges, 25, have informal arrangements and only six HEIs reported informal arrangements (some institutions reported more than one articulation arrangement). The type of articulation arrangements reported included those between HEIs and TVET colleges; HEIs and the workplaces; TVET colleges and workplaces; TVET colleges, HEIs and workplaces; TVET and international institutions; and HEIs and NGOs. While arrangements were in place, there are still challenges.

Critical for articulation between institutions are resources, including funding to support articulation. The National Articulation Baseline Survey Results and Reflections identified further enablers of articulation between institutions: The development of collaborative relationships; the role of entities such as private colleges, NGOs, provincial structures, and employers are important especially in the provision of work placements; formal articulation agreements; inclusive admission criteria; and the quality of teaching and learning.

The *National policy on Community Education and Training Colleges* which was gazetted in 2015 (DHET 2015a) stated that community colleges should work in collaboration and articulation with other sections of the post-school system. Community college programmes should wherever possible articulate with further education and employment opportunities, as well as retrospective articulation with schooling. An integrated post-school education and training system can further be realised if Adult and Community Education and Training (ACET) is recognised as part of continuing education and training in the PSET sector, including the overlaps and articulation of ACET with technical and vocational education and training and higher education and training.

In view of the overwhelming numbers of people between 18 – 24 years of age in the NEET category, Community Colleges should be designed to offer learning pathways or single courses that are particularly attractive and practically useful especially to this group. A post-school education system must offer learning pathways to potential learners who have left school without achieving a Senior Certificate, or a vocational

certificate that allows them access to further training, or who have not met entrance requirements for HEIs, or who do not have a basic educational platform for post-secondary education.

It would make sense for Community Colleges to establish and maintain strong links with schools, other colleges (both public and private) and popular education initiatives in their areas, and with departments in higher education institutions who sometimes have particular strengths in popular citizen and community education. Following from this, a worthwhile investment of public funds would be in articulation programmes among institutions.

An understanding of all the different types of institution in a region is necessary to foster inter-institutional cooperation and articulation. This will become especially important if open and distance modes of delivery expand, since quality must be assured in all forms of delivery.

If quality assurance mechanisms are rigorous and coherent and include evaluations of the work of educators or lecturers, people will be assured of the quality and relevance of the education and training offered by Community Colleges and facilitate articulation between post-school institutions.

Resources at post-school institutions are required to improve efficiency and address articulation in the post-school system. Subsequently the following sections will address matters pertaining to capacity, funding and budget allocation in the PSET system.

6.8 CAPACITY IN POST-SCHOOL EDUCATION AND TRAINING INSTITUTIONS

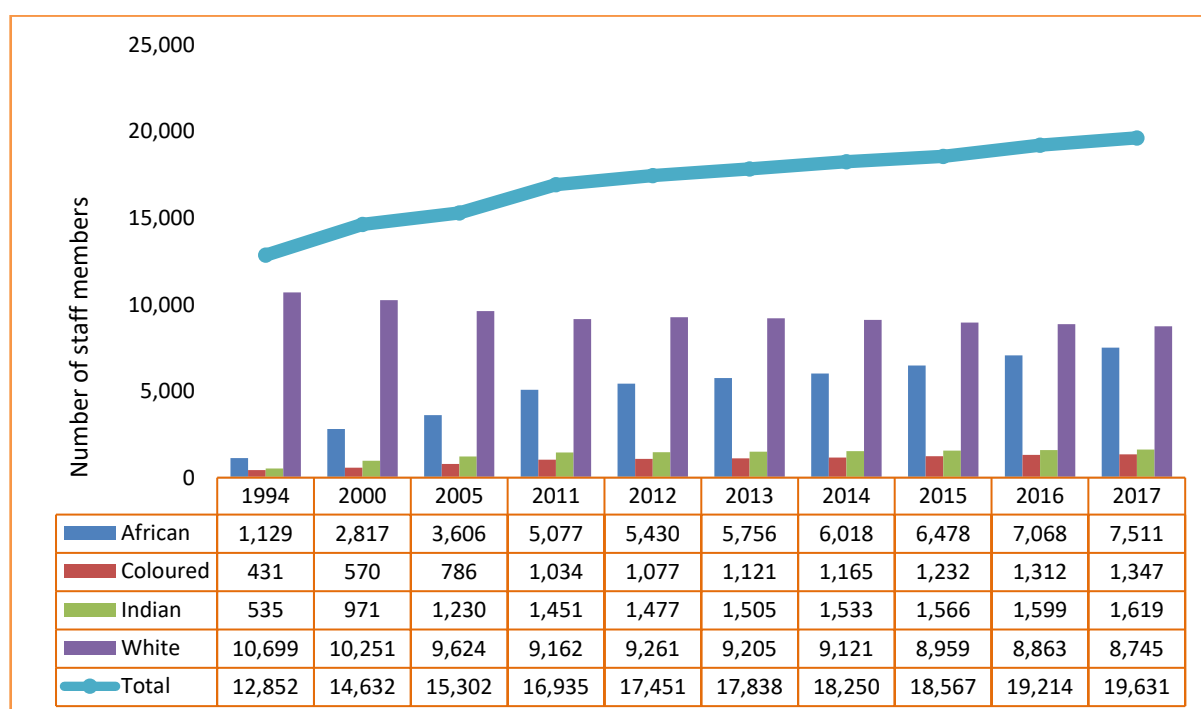
Efficiency can be improved with, *inter alia*, an appropriate staff-student ratio and qualified staff with enough experience to improve throughput rates, as well as contribute in promoting better articulation within a specific institution and between entities. Subsequently, a discussion on the current staff complement in PSET by first looking at capacity in higher education; followed by capacity in TVET colleges; capacity in CET colleges; capacity in SETAs; and also the provisioning of teachers via the PSET system.

6.8.1 Capacity at higher education institutions

The Education White Paper 3 (RSA DoE 1997) made it clear that there is a need to build capacity at higher education institutions and improving staff equity. National growth projections for student numbers over the next five years point to the need to rapidly upscale the recruitment of academic staff. It is calculated that the higher education sector will need to recruit at least 1 200 new academics per annum to respond to historical backlogs, cater for staff attrition and to accommodate planned growth.

In **Figure 22** it is indicated that there has been an increase in the staff complement at higher education institutions since 1994. Over the period 1994-2017, the staff complement at universities has increased with a CAGR of 4.3%. This growth rate needs to speed up if the target of 1 200 new academics per annum needs to be attained.

Figure 17: Staff component at universities



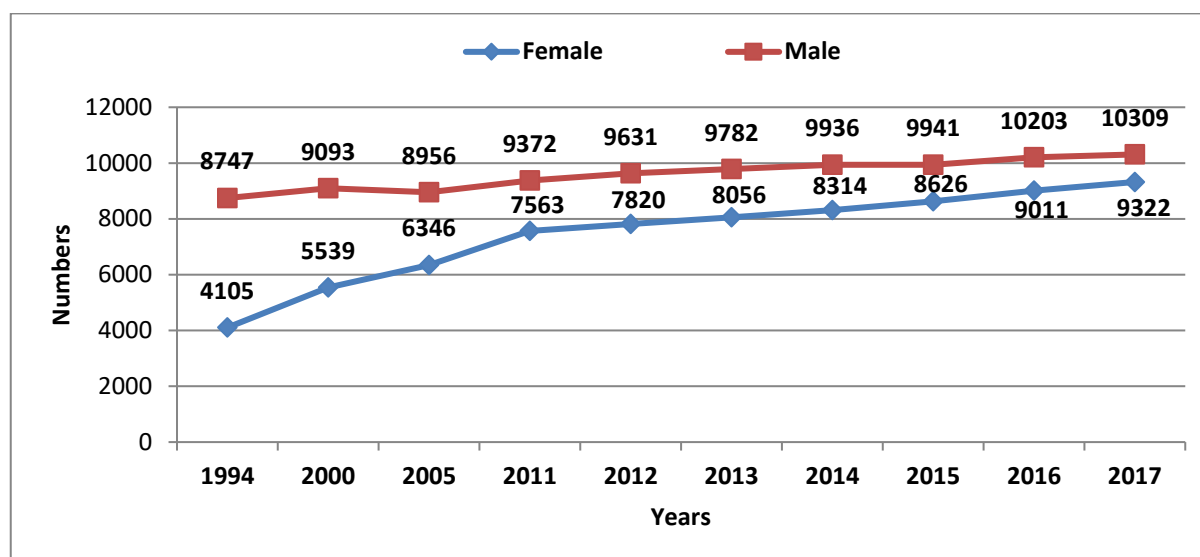
Source: HEMIS, DHET 2016.

Before 1994 the composition of staff at higher education institutions was still racially skewed, with white male academics dominating key areas of university and academic life, especially at historically white universities (DHET 2012). This trend has been changing gradually (Figure 23).

Over the period 1994-2017 the number of African lecturing staff had the highest growth rate (CAGR of 8.6%) of all the racial groups, although in 2017 the proportion of African lecturing staff (39.1%) was still slightly lower than the proportion of white lecturing staff (45.5%) that had a negative growth rate (CAGR of -0.9%) over this period. The coloured lecturing staff group had the second highest growth rate (CAGR of 5.1%) over the same period, but was proportionally still the smallest lecturing group (7.0%) at higher education institutions in 2017. Indian lecturing staff had the third highest growth rate (CAGR of 4.9%) over this period and made up 8.4% of the lecturing staff at higher education institutions in 2017.

Although the number of female lecturing staff had a stronger growth rate (CAGR of 3.6%) than the number of male lecturing staff (CAGR of only 0.7%) over the period 1994-2017, the proportion of female lecturing staff was still slightly smaller (47.5%) than the proportion of male lecturing staff (52.5%) in 2017 (**Figure 23**).

Figure 18: Growth rate in the staff complement at higher education institutions by gender, 1994-2017



Source: HEMIS, DHET 2016.

6.8.2 Capacity at TVET colleges

The Green paper has identified resource inequalities as the key obstacles to transformation (Nzimande 2012). The TVET sector is especially on record as providing poor quality teaching and a key factor in this is the lack of adequately qualified staff to teach the college curriculum (Maringe and Osman 2016). Currently, college lecturing staff is recruited from the pool of top-performing TVET College students, and from TVET college students who have proceeded to university and then returned to TVET colleges. Research has found that there are concerns about pedagogical capabilities of lecturers that need to be strengthened and the challenge is to deliver high quality continuous professional development (CPD) to improve teaching and learning at TVET colleges (Reddy *et al* 2015).

6.8.3 Community education and training Educators

There were three categories of educators in the state system of adult education in 2012 (DHET 2012b): Active, trained school teachers who worked some hours of overtime in Public Adult Learning Centres (PALCs), who had some subject specialisation; volunteers in the Kha Ri Gude literacy campaign, most of whom had a certificate in ABET at NQF level 5, but no subject specialisation; and holders of AET learnerships from the ETDP SETA, also with no subject specialisation. Another category of educators at PALCs, that were still employed at the start of 2017 were 'Unprotected Temporary Educators' and who were young unemployed people who have passed Grade 12 and had no further training. (ETDP SETA 2012).

For Community Colleges to be a significant improvement on the PALCs, a needed change is for Community College educators to have work contracts of at least two years, and be paid salaries (Land and Aitchison 2017). The need for the expansion of training for adult and community educators at universities is being addressed in the form of the new Advanced Diplomas whose development is funded by DHET. Currently, qualifications held by AET educators range from Grade 12 School leaving certificates to post graduate degrees and many have no training in AET (ETDP SETA 2012; DHET 2015b). A primary degree or diploma, capped by a qualification in adult

and/or community education at NQF level 7 will now be required to ensure that educators in Community Colleges are equipped to teach adults and post school youth (Land and Aitchison 2017).

6.8.4 Capacity in SETAs for skills development

The calibre of people employed in a system is a feature of successful skills systems. Skills systems are complex structures required to handle exceptionally difficult tasks, such as research; supply and demand forecasting; brokering agreements between labour market stakeholders; designing programmes that integrate theory and practical learning; project managing the implementation of programmes; and monitoring and evaluation which requires high level expertise. The skills development system needs to attract and retain people of exceptional skills in a wide range of functions (Kraak *et al* 2013).

However, there are many inappropriately skilled people employed in SETAs. In a recent skills audit conducted in one of the SETAs placed under administration, stakeholders reported that when seeking advice, they got different advice from different people in a SETA and from different SETAs. When the HSRC conducted an evaluation of NSDSII, they found that most SETAs could not provide data, highlighting an almost complete absence of skills in relation to data management and analysis. There are bureaucratic delays in disbursing grants as a result of serious gaps in administrative skills in SETAs. In addition, there are capacity challenges in relation to governance; accounting; and the National Skills Authority (NSA) which requires strategic and legislative skills amongst other. Appropriate skills are unfortunately in short supply and present a challenge. (Kraak *et al* 2013).

It is recommended to: Develop specialist qualifications and sponsoring programmes at Masters level for key occupations within the SETA system; develop recruitment and retention strategies in order to staff SETAs with people capable of raising the bar in relation to performance and impact; and review the approach of temporary employment where contracts are being tied to the five year NSDS cycle in order to recruit and retain highly competent staff (Kraak *et al* 2013).

6.8.5 Provisioning of teachers via the PSET system

In 1994 the estimate was that there have been between 71 008 - 80 000 students that were studying to become teachers (Jaff *et al* 1995). Exact numbers were not available, because there was no national system of information and a lack of accurate data. The National Commission on Higher Education (NCHE) proposed that colleges of education be incorporated into universities, as many were small, expensive and heavily subsidised by the state. In 1997 Section 21 of the Higher Education Act (No. 101 of 1997) made all teacher education, and therefore colleges of education, part of the higher education system. On 1 January 2001, colleges of education were formally incorporated into existing universities and universities of technology (Chisholm 2009).

From 1997, provinces controlled the supply of teachers by placing stringent quotas on new enrolments, leading to a rapid decline in college enrolments – from 71 000 (or 80 000) in 1994 to 15 000 in 2000. However, unions were concerned about teacher shortages and argued that an increase in the number of teachers would reduce the size of classes and hence improve quality. A counter argument was that the number of colleges was not the problem, but the attractiveness of teaching as a profession – and this in turn meant addressing issues like salaries, conditions of work, and status of the profession, while attracting quality lecturers to new colleges in rural areas would be

difficult, requiring more incentives. Although the arguments were sound, they did not answer the question related to poor quality teacher training in higher education. In conclusion, the challenges of producing quality teachers in adequate numbers go well beyond the re-opening of teacher education colleges. The call for the re-opening of teacher education colleges has, however, focused attention on the challenge of improving current provisioning and quality of teacher education (Chisholm 2009).

In a bid to produce more teachers in the country, the Higher Education and Training Department was planning to open three former teacher training colleges in 2013, namely the former Ndebele College Campus in Mpumalanga for foundation phase teacher education and one former teacher training college each in Kwa-Zulu Natal and the Eastern Cape (SA NEWS 2012).

Teacher education has been under review since 2007 and initially the focus was on increasing recruitment, while the focus now has changed to quality, as enrolments for initial teacher education at universities has improved in the meantime from 35 275 in 2008 to 116 201 in 2015 (DBE and DHET 2016). In 2016, DBE and the DHET made a joint presentation on the Implementation of Measures to Improve Initial Teacher Education Programmes and Continuing Professional Teacher Development. DBE had engaged DHET on the perception that universities are too theoretical and has subscribed to the reopening of some teacher training colleges, while still attached to universities. The higher education system was perceived to be inefficient with a high teacher training dropout rate and students taking longer to complete qualifications. It was indicated that former teacher training colleges would be prioritised if the need for training facilities were to be identified (DBE and DHET 2016).

Challenges in improving capacity

The recruitment of academic staff need to be rapidly up-scaled, as national growth projections for student numbers over the next five years point to an increase. It is calculated that the higher education sector will need to recruit at least 1 200 new academics per annum to respond to historical backlogs, cater for staff attrition and to accommodate planned growth.

Since 1994 the number of African lecturing staff at universities had the highest growth rate of all racial groups, although in 2017 the proportion of African lecturing staff (39.1%) was still slightly lower than the proportion of white lecturing staff (45.5%) and transformation measures still need to apply.

Although since 1994 the number of female lecturing staff at universities had a stronger growth rate than the number of male lecturing staff, the proportion of female lecturing staff was still slightly smaller than the proportion of male lecturing staff and transformation with regards to gender still needs to be addressed.

The TVET sector is especially on record as providing poor quality teaching and a key factor in this is a shortage of adequately qualified staff. Currently, college lecturing staff is recruited from the pool of top-performing TVET College students, and TVET college students who went to university and returned to TVET colleges. The higher education sector therefore needs to increase the output of especially PhD graduates to take up lecturing positions either at TVET colleges or universities.

Retired artisans should be utilised in presenting skills development training at CETCs.

There are also concerns about pedagogical capabilities of lecturers at TVET colleges that need to be strengthened and the challenge is to deliver high quality continuous professional development (CPD) to improve teaching and learning at TVET colleges.

The challenge of limited management and administrative capacity at public TVET colleges should be addressed through Continuing Professional Development and appointment of people with business management experience.

All TVET College lecturers to participate in workplace exposure to learn the needs and requirements of industry going forward.

For Community Colleges to be a significant improvement on the PALCs, a needed change is for Community College educators to have work contracts of at least two years, and be paid salaries.

A primary degree or diploma, capped by a qualification in adult and/or community education at NQF level 7, will now be required to ensure that educators in Community Colleges are equipped to teach adults and post school youth.

It is recommended to develop specialist qualifications and sponsoring programmes at Masters Level for key occupations within the SETA system.

It is recommended that recruitment and retention strategies be developed in order to staff SETAs with people capable of raising the bar in relation to performance and impact.

It is recommended to review the approach of temporary employment where contracts are being tied to the five year NSDS cycle in order to recruit and retain highly competent staff at SETAs.

All SETAs that are government focused should be amalgamated in order to improve funding base and functioning (e.g. AGRISETA, PSETA, ETDP).

Teacher education has been under review since 2007 and initially the focus was on increasing recruitment, while the focus now has changed to quality, as enrolments for initial teacher education at universities has improved in the meantime. The higher education system was perceived to be inefficient with a high teacher training dropout rate and students taking longer to complete qualifications. It was indicated that former teacher training colleges would be prioritised if the need for training facilities were to be identified.

Summary

Efficiency can be improved with, *inter alia*, an appropriate staff-student ratio and qualified staff with enough experience to improve throughput rates, as well as contribute in promoting better articulation within a specific institution and between entities. National growth projections for student numbers over the next five years point to the need to rapidly upscale the recruitment of academic staff.

There has been an increase in the staff complement at higher education institutions since 1994. This growth rate needs to speed up if the target of 1 200 new academics per annum needs to be attained.

The racially skewed higher education staff complement at higher education has been changing gradually. Since 1994, African lecturing staff had the highest growth rate of all the racial groups, although the proportion of African lecturing staff (39.1%) was still slightly smaller than the proportion of white lecturing staff (45.5%) in 2017. Although the number of female lecturing staff had a stronger growth rate than the number of male

lecturing staff since 1994, the proportion of female lecturing staff was still slightly smaller (47.5%) than the proportion of male lecturing staff (52.5%) in 2017.

The TVET sector is especially on record as providing poor quality teaching and a key factor in this is the lack of adequately qualified staff to teach the college curriculum. Research has found that there are concerns about pedagogical capabilities of lecturers that need to be strengthened and the challenge is to deliver high quality continuous professional development to improve teaching and learning at TVET colleges.

For Community Colleges to be a significant improvement on the PALCs, a needed change is for Community College educators to have work contracts of at least two years, and be paid salaries. The need for the expansion of training for adult and community educators at universities is being addressed in the form of the new Advanced Diplomas whose development is funded by DHET. Currently, qualifications held by AET educators range from Grade 12 School leaving certificates to post graduate degrees and many have no training in AET. A primary degree or diploma, capped by a qualification in adult and/or community education at NQF level 7 will now be required to ensure that educators in Community Colleges are equipped to teach adults and post school youth.

There are many inappropriately skilled people employed in SETAs. The calibre of people employed in a system is a feature of successful skills systems. Skills systems are complex structures required to handle exceptionally difficult tasks, such as research; supply and demand forecasting; brokering agreements between labour market stakeholders; designing programmes that integrate theory and practical learning; project managing the implementation of programmes; and monitoring and evaluation which requires high level expertise. The skills development system needs to attract and retain people of exceptional skills in a wide range of functions.

It is recommended to develop specialist qualifications and sponsoring programmes at Masters Level for key occupations within the SETA system and develop recruitment and retention strategies in order to staff SETAs with people capable of raising the bar in relation to performance and impact. The approach of temporary employment where contracts are being tied to the five year NSDS cycle in order to recruit and retain highly competent staff, needs to be reviewed.

Teacher education has been under review since 2007. The challenges of producing quality teachers in adequate numbers go well beyond the re-opening of teacher education colleges. The call for the re-opening of teacher education colleges has, however, focused attention on the challenge of improving current provisioning and quality of teacher education. DBE had engaged DHET on the perception that universities are too theoretical and has subscribed to the reopening of some teacher training colleges, while still attached to universities. The higher education system was perceived to be inefficient with a high teacher training dropout rate and students taking longer to complete qualifications. It was indicated that former teacher training colleges would be prioritised if the need for training facilities were to be identified.

The reconstitution of post-school education and training is characterised by an increase in the number of higher education students, though throughput has remained poor. Mergers were an attempt to bring about equity in previously racially segregated institutions, though the capacity to manage such merged institutions was extremely weak, as has been indicated. Subsequently an analysis of the funding towards supporting growth envisaged to turn around the 'inverted pyramid'.

6.9 FUNDING

In 1996 the National Commission on Higher Education expressed concern about the “inverted pyramid” structure of post-school education in South Africa which had a narrow technical and vocational training sector and broader range of options in the much larger university sector. In 2016 about half of all public post-school enrolments were still at universities, about a third at TVET colleges and a meagre 14% at CET (refer to Figure 4).

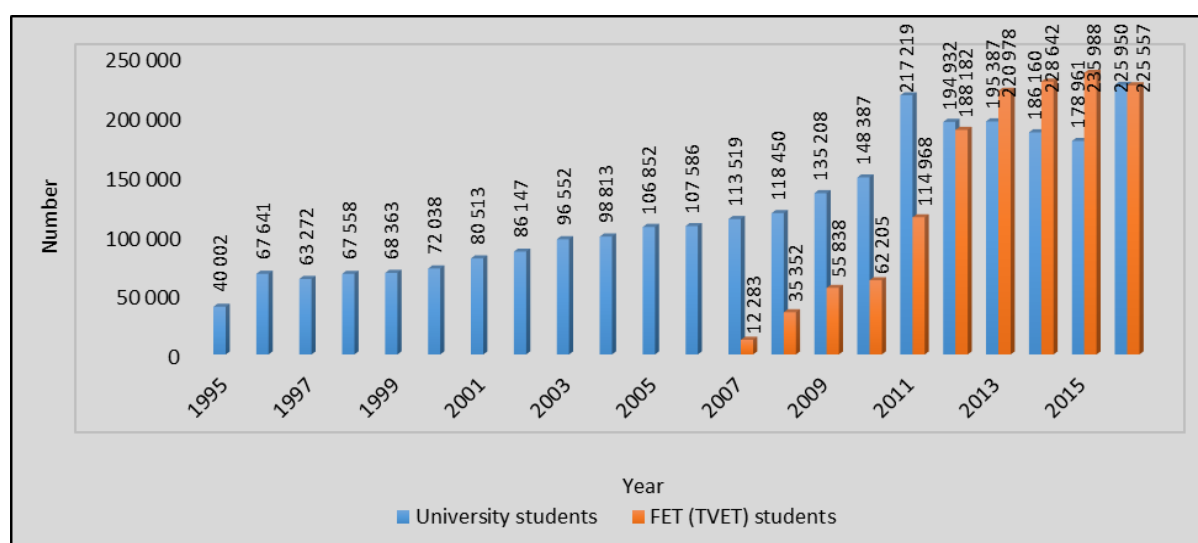
In 2017 the government established the Heher Commission of Inquiry into higher education and training which observed that the CET and TVET sectors particularly need attention as they are severely underfunded, and cannot perform at their current funding levels. The Heher Commission recommended that any financial decisions must take into account the education sector as a whole (Heher 2017:58, 541).

At present still lower numbers of students can be accommodated at TVET colleges than at universities and very few of those without a Senior Certificate take up adult education. Policy-makers have attributed this slow change in the PSET structure to a lack of finances (DHET 2017). The following paragraphs will look at the balance of funding in the PSET system.

The National Student Financial Aid Scheme (NSFAS) has its roots in the Tertiary Education Fund of South Africa (TEFSA), which was established in 1991 by the Independent Development Trust as a not-for-profit company to provide loans to university students. The National Student Financial Aid Scheme Act was promulgated in 1999 to give effect to government’s commitment to redress the inequities of the past and to address the rising student debt problem in higher education institutions. The NSFAS is the largest earmarked grant, whose share of the university state budget increased from 3, 7% in 1997/98 to 27.9% (R14, 9 billion) in 2018/19. These annual state budgeted amounts for the NSFAS exclude funding income for NSFAS from funds recovered from previous beneficiaries of NSFAS and from private donors.

The PSET institutions (HEIs, TVET colleges and CETs) are funded largely through public funds and student fees. From 2013-2015, a larger number of students from TVET colleges received NSFAS funding compared to those from universities (**Figure 24**). The NSFAS funding over this period indicates some progress towards turning around the PSET structure.

Figure 24: Number of students who received NSFAS funding by institution type 1995- 2016



Source: DHET 2018

NSFAS has awarded R60.5 billion to approximately 2.7 million students in loans and bursaries from 1991 to 2016 at 25 public higher education institutions and public TVET colleges. The amount of funds to support students increased from R22 million in 1991 to R10.3 billion in 2016, while the number of students supported has increased from 7,240 in 1991 to 225 950 in 2016; and Female and African students have been the majority beneficiaries consistently over the years. In 2016, 57.6% of the beneficiaries were female students, and 87.2 were African students. The state allocation to NSFAS increased from R7.7 billion in 2016 to R14.9 billion in 2018/19. The large increase is due to the introduction of a national bursary scheme for poor and working class students in 2018

Universities and colleges (TVET / CET) rely on subsidies received from the fiscus. Unlike colleges, universities also receive third stream income which can be in a form of donations, research funding or student fees. If the TVET sector is to be expanded from the current 700000 enrolments to reach the NDP target of 2 million by 2030, it will require a huge funding injection, unless TVET colleges develop strategies for third stream income.

According to the Heher commission (2017:21), already by 2017 the government response to the so-called 'Fees Must Fall' protests had been a R16.2 billion top-up to university students and a cut in budget for TVET colleges (Heher 2017:23). Some of the funding that had been intended for adult basic education for the unskilled and unemployed was also diverted from the National Skills Fund (NSF). To add to this funding crisis, in late December 2017 the then president announced that there would be free higher education for university students. Various analysts estimated that this could cost the state between R20 and R40 billion (Aitchison 2019). The Heher commission indicated that the priorities in CET, TVET and universities need to be balanced and equally deserving sectors should not be neglected (Heher 2017:58, 541).

The country's universities and universities of technology were not always this dependent on students. In 2006, 27% of income was received in the form of tuition fees, rising to 35% in 2015. The latest data from 2016 show this contribution falling slightly to 32%, partly as a result of a rise in government spending and keeping fees

unchanged in 2016. Revenue of HEI from government will increase by R17.6 billion over the next 3 years, and this will balloon the transfers done to institution (STATSSA 2015).

To give effect to the Presidential announcement, additional funds were allocated through the fiscus to enable the Department of Higher Education and Training to introduce a national bursary scheme for poor and working class students from households with a gross combined annual income of up to R350 000. The Bursary Scheme is being phased in over a period of five years starting in 2018 for first time entry South African students. For returning existing NSFAS funded university students, in 2018 and going forward, their loans will be converted into full bursaries.

The new DHET bursary scheme also requires that a student funding policy be developed as a matter of urgency to outline in more detail the policy guiding the implementation of the new DHET bursary scheme. Work on this policy has begun, and a draft policy will be under discussion within the next few months. It has also been recognised that 'missing middle' students who fall outside of the new Bursary Scheme income threshold also need to be supported to access funding for their studies.

6.9.1 National Skills Fund (NSF)

The NSF was established with a sole purpose of improving the livelihood of unemployed adults through skills development in social development. This resulted in over 90 000 people trained in such projects and over 70% of the budget utilised. However, the mandate of the NSF has evolved over the years and does not focus primarily on government or community driven projects only, but also funds training through TVET Colleges.

Table 6: Total numbers of NSF supported projects and beneficiaries and amounts disbursed across key projects, 2011/12 – 2016/17

Year	Number of (Public projects)	Number of projects	Bursaries beneficiaries nt to TVET	NSF disbursement and Colleges R'000	Support to NGP R'000 (Private)	Support to IPAP Development	Rural National Priorities R'000	Other (Public) R'000	Total R'000
2011/12	318	107 531	799 199	-	166 347	65 470	30 163	243 770	1 304 949
2012/13	157	95 468	1 238 398	438 258	223 775	43 385	113 017	518 293	2 575 126
2013/14	164	77 913	1 272 200	493 123	428 456	64 800	101 008	618 826	2 978 413
2014/15	185	62 617	1 074 769	507 020	225 262	58 653	221 235	1 003 604	3 090 543
2015/16	207	63 903	1 551 362	453 705	213 430	181 136	233 779	1 723 750	4 357 162
2016/17	170	48 169	1 390 404	209 610	544 431	32 311	241 744	2 597 398	5 015 898

Source: Statistics for PSET, 2016

The financial years 2011/12 and 2016/17 were characterized by significant declines in the total numbers of skills development projects supported by NSF largely due to the refocusing of the NSF funding towards priority projects on the PSET system (**Table 6**). The largest number of 318 projects was recorded in 2011/12, while the least number of 157 projects was recorded in 2012/13 over the period 2011/12 to 2016/17. During 2016/17, NSF supported 170 skills development projects across the country. The majority of such projects were located at provincial level, while 42 were multi-provincial projects and 8 were national projects/international scholarship projects.

Some of the key national projects supported by NSF include the National Artisan Moderation Body (NAMB), National Artisan Development Support Centre (NADSC) for

national artisan development, the Recognition of Prior Learning (RPL) Project of INDLELA, the Labour Market Intelligence Project (LMIP), South Africa Institute of Chartered Accountants (SAICA) for capacity development of TVET Colleges Chief Financial Officers (CFOs), CEPD – Research and Public Engagement of Post-School Education and Training (PSET) development, Special Infrastructure Programme Presidential (SIPP) resourcing the DHET unit for Strategic Integrated Projects (SIPs), DHET-South African Institute for Vocational and Continuing Education and Training (SAIVCET), capacity development to National Examinations and Assessments, National Comprehensive and Independent career development helpline and advisory service, and Ministerial Task Teams on interventions related to skills development. These PSET interventions funded from the NSF are managed as one project with a Service Level Agreement with the Department.

From the total 48 169 persons who directly benefited from the projects supported by NSF in 2016/17, 1.1% (522) were people with disabilities, 53.2% (25 641) were residents in rural areas, 46.8% (22 528) were residents in urban areas, 55.4% (26 702) were females and 44.6% (21 467) were males. In terms of population group, the majority 87.5% (42 134) were Black African, followed by 7.4% (3 551) Coloured, 2.3% (1 102) White, 1.7% (838) other- who did not indicate population group(s) they each belong to, 1.1% (526) Indian, and 0.0% (19) Asian. Furthermore, 50.4% (24 284) of beneficiaries were youth below 25 years of age, followed by 36.6% (17 638) youth in age group 25-34 years, and 13.0% (6 247) adults who were 35 years and above.

6.9.2 Challenges in funding PSET

Funding of HEIs and TVET colleges is based on enrolment planning, and over-enrolment is not funded (Cloete, 2009). If the same model is used in the funding of Community Colleges, they will need some leeway, especially in the first years of operation since targets will be difficult to estimate. Community Colleges can never charge fees if they serve ordinary South Africans in need of the benefits which community colleges could offer (Land and Aitchison 2017).

The main constraint on the funding of Community Colleges is that adult education has historically been poorly funded in comparison to the school and university components of the state education system and an apparent bias towards universities in the allocation of PSET resources, while TVET colleges are receiving smaller and smaller percentages of the subsidy. Currently Community Colleges do not have the capacity to create skills training programmes and therefore funding from SETAs and the NSF is a challenge. It would require extensive investment in staff, equipment and facility development to establish capacity for skills development programmes (Land and Aitchison 2017).

Without new sources of income there may simply not be enough in the state fiscus to enlarge the Community College sector. One recommendation is tax-breaks to encourage SETAs, companies and businesses to contribute more to the post-school sector (HESA 2011). Another option is to offer internet access at Community Learning Centres (CLCs) which opens up the possibility for advertising revenue and switching from print materials and photocopying to electronic materials (Land and Aitchison 2017).

The Heher commission (DHET 2017) argued that the needs of CET should be taken into consideration before further funds are allocated to universities. In addition the ministerial committee on the review of funding of TVET and CET colleges (DHET 2017) addressed the issue of failures in the school system and recommended that if community colleges are expected to remediate the failures from the school system, their funding and general capacity will have to reach a much higher level. The *Draft policy on staffing norms for CET colleges* (DHET 2016) allocates only 45% of the total budget to the teaching staff in the previous PALCs, as there are no new central community college campuses. There is little likelihood of local communities having their education and training needs being addressed when only 45% of the total budget is spend on professional staff operating in PALC sites. The Heher commission (DHET 2017:542).

The ministerial committee also argued for the strengthening of the research capacity of the TVET and Community college sectors and recommended that a percentage of the overall funding be allocated to support the increase in internal research capacity in both TVET and CET colleges.

The ministerial committee on the review of funding of TVET and CET colleges recommended that (DHET 2017:27–41):

- More money is needed for TVET and community colleges.
- The funding formulas need to be revised and must ensure stable, predictable funding.
- The existing inequality of funding to TVET colleges in different provinces has to cease.
- The sector education and training authorities (SETAs) need to play a stronger role in ensuring guaranteed funding.
- Infrastructure and refurbishment are needed.
- Bridging and foundation programmes, and student support, are required.
- Theory and practice have to be reconnected.

6.10 BUDGET

6.10.1 Budget for Higher Education and Training

The budget of the Department of Higher Education and Training (DHET) for universities has increased from R9, 879 billion in 2004/05 when the existing funding framework was introduced, to R53, 499 billion in 2018/19. These amounts include funding for the National Student Financial Aid Scheme (NSFAS) which increased from R578, 2 million in 2004/05 to R14, 901 billion in 2018/19 for the universities only, but do not include other sources of state funding, such as funds allocated from the National Skills Fund and other government Departments such the Department of Science and Technology.

South Africa's state budget for universities, including funding for NSFAS⁶⁹, as a percentage of Gross Domestic Product (GDP) was 0.65% in 2004/05, gradually increased to 0.85% in 2017/18, and further increased to 1.06% in 2018/19. Within the past Medium Term Expenditure Funding (MTEF) budget cycle, a significant increase in funding for universities was secured after the protests of students on university campuses concerning the high student fees and the release of the report in November 2017 of the Presidential Commission of Inquiry into the Feasibility of Making Higher Education and Training Fee-free in South Africa.

The DHET funding framework for universities of R53,499 billion in 2018/19 is made up of a block grant subsidy which amounts to R29,023 billion in 2018/19 (or 54,2% of the funds) and a range of earmarked grants, including NSFAS, which amounted to R24,476 billion (or 45,8% of the funds). The NSFAS alone comprises R14, 901 billion (or 27, 9% of the total of R53, 499 billion).

Block grants funds are Council controlled funds mainly used to fund operational and teaching and learning activities. Earmarked grants include the infrastructure grant, foundation provision grant, clinical training grant, university capacity development grant, Historically Disadvantaged Institutions (HDI) development grant, veterinary sciences grant, the gap grant for poor and missing middle student fees, and a grant for the development of the two newly established universities, Sol Plaatje University and the University of Mpumalanga. Earmarked grants are seen as an important mechanism to address transformation imperatives in the university sector, since they are ring-fenced funds that must be used for the purpose for which they are intended. These are audited in order to ensure that they are used for the purposes intended.

For the period of 14 years, from 1997/98 to 2010/11, the earmarked share more than doubled from around 11% to about 24%. After 2010/11, the earmarked share of the university budget kept on increasing, namely 2011/12 (25, 5%), 2012/13 (28, 2%), 2013/14 (29, 3%), 2014/15 (30, 3%), 2015/16 (32, 3%), 2016/17 (41, 1%), 2017/18 (42, 3%) and 2018/19 (45, 8%).

The main reasons for these increases in the share of earmarked grants from 2011/12 to 2018/19 were the NSFAS in 2011/12, the NSFAS and development grants (research and teaching) in 2012/13, infrastructure funds for new universities in 2013/14 and 2014/15, the HDIs development grant in 2015/16, the NSFAS in 2016/17, the Gap grant for poor and missing middle student fees in 2017/18 and the NSFAS in 2018/19. It is therefore clear from the above that the NSFAS had a significant impact on increases in the overall state budgets for universities. Since the NSFAS is a contribution towards student funding (i.e. second income stream funding for universities in terms of student tuition and accommodation fees), the block grant for the daily operational costs of universities still remains under pressure.

The key structural variables responsible for most of the challenges experienced by HDIs include, among others, funding approaches that were inimical to the establishment of a viable intellectual enterprise, remote geographic locations, and insufficient infrastructure. In addition to structural constraints, it has been argued that “agential variables”; mainly poor governance and management, have conspired in the case of some HDIs against any meaningful prospect of their overcoming structural constraints. Acknowledging this dialectical interplay of structural and agential variables is crucial in devising properly targeted funding interventions.

The other argument put forward is that, such institutions have been further disadvantaged by the DHET funding framework for universities which was introduced in 2004/05. However, statistics show that funding for HDIs for the period 2004/05 to 2014/15 has increased at a higher rate than the average for all universities. The HDI universities include: University of Fort Hare; University of Limpopo; Mangosuthu University of Technology; Sefako Makgatho Health Sciences University¹; University of Venda; Walter Sisulu University; University of the Western Cape; and University of

¹ Although Sefako Makgatho Health Sciences University is a newly established university, it has incorporated the Medunsa campus of UL, and therefore has been included as an HDI.

Zululand. Amongst these universities, the block grant subsidy increased between 263, 2% and 330, 2% while the average percentage increase for all universities was 244, 4% for the period mentioned. Furthermore, the infrastructure grant allocation for the abovementioned eight (8) universities over the period 2012/13 to 2014/15 was 42% of the total. Although Sefako Makgatho Health Sciences University is a newly established university, it has incorporated the Medunsa campus of UL, and therefore has been included as an HDI.

In 2015/16, the Minister approved the introduction of the HDI Development Grant of R410 million. HDI grants are development funds to help these universities to put in place systems to develop and ensure the sustainability of a financially healthy situation at the university, and to enable the university to strengthen its academic enterprise and fully realise its potential, taking up a sustainable position within a differentiated higher education system. The funding for the HDI was additional funding allocated by the vote through a national treasury bid in 2012/13, and the HDI Grants will be allocated to the 8 universities based on approved plans over a 5-year period from 2016/17- 2020/21.

6.10.2 Budget for the Technical and Vocational Education and Training Sector

Following the announcement of 16 December 2017 by the head of the state, the budget allocations for the TVET sector increased significantly. There was a new allocation for Capital Infrastructure and Efficiency Grant (IEG) baseline allocation of R1.3 billion for 2018/19 financial year.

The total budget allocation as confirmed by the National Treasury for TVET colleges relating to the 2018/19 financial year amounts to R13.255 billion as indicated in below in **Table 7**.

Table 7: Budget Allocation for TVET Colleges for 2018/19

Funding Categories	2017/18 R'000	2018/19 R'000	Baseline Growth Rate %
Compensation of Employees:	5 535 383	5 879 961	6.2%
Lecturing and Support Staff	5 377 029	5 711 631	6.2%
College Management Staff	158 354	168 330	6.3%
Transfers and Subsidies (including IEG)	1 328 096	4 287 538	222.8%
80% Programme Funding	1 328 096	2 987 538	124.9%
Infrastructure and Efficiency Grant	-	1 300 000	100%
Total programme funding	6 863 479	10 167 499	48.1%
NSFAS Bursaries	2 437 620	3 087 859	26.7%
Total TVET Allocation	9 301 099	13 255 358	42.5%
Total TVET Allocation growth (excluding Infrastructure and efficiency grant)			28.5%

The total budget allocation for TVET Colleges increased by 42.5% from 2017/18 to 2018/19 and by 28.5% excluding the new Capital Infrastructure and Efficiency Grant. This increase which is attributable to the phasing in of free fee higher education for poor and working class students with a maximum combined gross family contribution up to R350, 000 per annum.

This funding will be able to cater for approximately 458 875 headcount enrolments

relating to Ministerial Approved Programmes from the envisaged 664 748 enrolments in the system for the financial year 2018/19. This implies that government will be able to fund TVET Colleges at 69% of the required 80% funding level for 2018/19. The other 20% is expected to be raised either through charging fees to those earning above R350 000 total household income or be covered by bursary from NSFAS. It is expected that the required funding level of 80% will be achieved over a period of 5 years if the enrolments are kept constant. Transfers and subsidies had the highest increase which is an increase by 222.8% which includes the transfer for Capital Infrastructure and Efficiency Grants.

The final programme funding allocation amounts to R10.167 billion. The allocation comprises of the following:

- Compensation of Employees (PERSAL) allocation (R5.879 billion), comprised of remuneration and related expenses of TVET College staff offering Ministerial Approved Programmes. This allocation includes salaries (R168.330 million) for TVET College Management staff.
- Direct Transfers (R4.287 billion) which cater for operational costs of TVET Colleges (such as the purchasing of Learner and Teacher Support Materials, water and electricity, protective clothing, workshop materials etc.) including an Infrastructure Efficiency Grant as indicated in Table 4 above.

6.10.3 Budget challenges in the TVET sector

At TVET colleges the state's 80% component of funds has seldom been fully paid, according to the funding formulas and in recent years there have been more cuts, leaving the affected colleges with severe budget shortfalls, while student enrolments are increasing. As an example, in 2013/2014, Treasury's total Medium-Term Expenditure Framework (MTEF) budget for TVET college education should have been R5.989 billion. However, the actual allocation budget was R4.845 billion. If this trend is to be continued, by 2026 TVET colleges will receive no money at all (Aitchison 2019).

In the economic development context in South Africa, the role of TVET is particularly crucial to the development of the country's manufacturing sector. However, one of the major constraints to the development of a manufacturing sector and a productive export strategy is the lack of 'middle level' skills in terms of technicians and artisans. It is towards a growth in the 'middle sector' that an expansion of the TVET college provision is necessary (DHET 2012).

Funding of the TVET colleges has been inequitable and insufficient and it is proposed that colleges receive equal rand values per weighted FTE student. Additional top-up funding could be channelled to the colleges in the provinces that have historically been severely underfunded (Aitchison 2019).

6.10.4 Budget for the Community Education and Training sector

The adult and community education and training sector has been ineffective and poorly resourced for many years and it will take a substantial budget to upgrade it to a proper Community College sector that can reach the envisaged target of one million students by 2030, as stated in the White Paper (2013b). Currently, the total government budget for adult and community education is slightly more than R2 billion (Aitchison 2019). With an inadequate CET sector budget the shape of the PSET sector cannot change and the CET sector will not be able to meet the education and training needs of the large proportion of NEETs in the country.

The only approach to achieve change in the funding of CET is to set a benchmark in the proportion of the national education budget that is awarded to CET (Aitchison 2019). Currently, the 0.7% allocation is derisory in light of the advocacy for adult education to obtain at least 5% of education budgets internationally (although few reach a 3% benchmark and it is generally below 1% in Africa). Ideally, as an interim measure, the overall CET budget should be increased immediately to 1.5% of the national education budget, while increasing to 2.5% and 5% over the longer-term. The suggestion is that certain percentages of the budget be ring-fenced for personnel costs (including coordination), curriculum and materials, maintenance, and monitoring and evaluation (DHET 2017:245).

The needs of Community Education and Training should be taken into consideration before determining to allocate further funds to universities. Approximately R46.21 billion in additional funding is needed for Community Education and Training over the Medium-Term Expenditure Framework (Heher 2017:58, 541)

The under-resourcing of TVET and CET sectors which serve particularly disadvantaged sections of the population, needs to be addressed as a matter of urgency. The redistribution of funding resulting from pressure of populist political interests such as 'Fees Must Fall' protests is short sighted and universities cannot be funded at the expense of the TVET and CET sectors (Aitchison 2019).

RECOMMENDED PRIORITIES IN THE NEXT MTSF: 2019-2024

Increasing access to PSET

The challenge in South Africa is to reverse the 'inverted pyramid' characterising South Africa's education system. With 14 million NEETs in the country, the current focus in the PSET system should be on turning around this grave situation by providing access foremost to the new Community Education and Training colleges and increase the skills levels and employability of as many currently unemployed people as possible. However, compared to enrolments at higher education and TVET colleges, the proportion of Community College enrolments has decreased in 2016. Enrolments at Community Colleges urgently need to be increased to a larger extent in order to absorb the large proportion of NEETs. Lower-wage jobs need to absorb the large numbers of unemployed people and post-school access in Community Colleges need to increase as a matter of urgency.

Department of Labour and Higher Education and Training should work together in offering retrenched workers training at CETCs and explore the possibility of using UIF for skills training at both CETCs and TVET colleges.

Online and technology-enhanced teaching need to open up campuses to reach students with diverse backgrounds. Massive Open Online Courses (MOOCs) can increase PSET access accompanied by policies to regulate the use of online instruction.

Strengthen distance education as an alternative education and training vehicle to open PSET to more people and increase opportunities for upgrading qualifications.

Open Education Resources (OER) offers a number of courses that are open to those with Internet access at no additional cost, however policies needs to be developed to assure that standards are on par with conventional education and training.

The connectivity rate of educational institutions needs to speed up at a reduced cost and at a zero rate for government approved educational websites.

CETCs and TVET colleges could play an important role in providing alternative opportunities to gain access to education and training, previously denied to the majority in the country. Most people have cell phones and can be used to improve opportunities via Internet access.

CETCs and TVET colleges can incite enthusiasm for entrepreneurial initiatives by providing interesting programmes and courses that skill people to enable them to start own businesses, especially with the Small Business and Innovation Fund receiving R3.2 billion in the 2019 budget year to support small business intermediaries.

Because South Africa needs to expand middle society and increase middle level skills (post- Grade 12, pre-degree qualifications at NQF Levels 5-6) that are required in the formal economy, access to TVET Colleges must be improved. In this regard, the public PSET system has made progress with headcount enrolments at TVET colleges that have almost doubled since 1999. Enrolments at TVET colleges still need to increase, as there are proportionally lower enrolments at TVET colleges than at universities.

Great progress has been made with regard to changing the racial composition in PSET since 1994. African enrolments made up the majority at universities, TVET and CET colleges in 2016, although African and Coloured student's enrolments still need to be increased to reach the 20% target. However, the enrolment of all racial groups need to be increased firstly at CET colleges (currently with lowest enrolment proportionally), secondly at TVET colleges, and then at universities to address the 'inverted pyramid'.

More people with disabilities need to be enrolled at PSET, as only 1% of those that have enrolled at higher education in 2016 were people with disabilities.

The increase in SET enrolments (surpassing enrolments in the Humanities) is a significant change in terms of meeting the economic needs of a country that is becoming largely a knowledge economy. While the race composition of students enrolled in SET has been changing rapidly, the change in terms gender has been slow and more females need to enrol in SET at universities.

The Gross enrolment ratio over a twenty year period from 1997 to 2016 at higher education has increased and then remained relatively steady since 2016. The stagnation in the participation rate is likely a sign of a system that is under capacity constraints, in terms of factors like infrastructure, funding and staffing. This presents a challenge in a knowledge based economy faced with high unemployment rates at the same time. This will require a well thought trough balancing of funds between higher education, the TVET sector and CET sector going forward.

Efficiency in the PSET sector

Without an effective quality basic education, the post-school education and training sector will not reach its full potential. Therefore, a general recommendation is for the Basic Education sector to improve as a matter of urgency.

In a recent Innovation Index South Africa was one of the lowest-ranked countries when it comes to 'tertiary efficiency'. Efficiency in all PSET levels must be addressed by increasing throughput, drop-out rates, capacity, infrastructure, and funding towards this end.

In the Innovation Index South Africa also performed poorly in the ‘researcher concentration’ metric, which measures the number of professionals in the country who are engaged in research and development. In order to stay competitive and grow the economy, the country needs highly skilled professionals who are innovative, add value, and create work opportunities and employment for many others in the country. Higher education needs to produce more PhD graduates and invest more in research.

While the throughput rates and drop-out rates in higher education has improved to some degree, more students need to complete their degrees within the expected time. Therefore efficiency at school level needs to be addressed and student support at universities needs to improve further. This entails the improvement of foundation face literacy and numeracy at primary school level; the stimulation of an interest in Mathematics to open up more study options; and the introduction of career guidance, especially in socio-economically disadvantaged schools.

Greater support is needed to support students from low quintile schools and enable them to make the transition from school to higher education and employment upon obtaining a qualification.

Improve support in programmes that identify and mentor promising learners from disadvantage secondary schools to gain access to courses.

Improve academic development programmes at higher education institutions to support and ease the transition from school, especially in coping with work load as a result of increased quantity and level of difficulty.

Academic support programmes at universities need to be standardised within and across institutions.

Monitoring and evaluation need to determine efficacy of support programmes at institutions.

Improve both the administration and performance of the historically disadvantaged universities to enable them to produce qualifications and graduates that are respected in the labour market.

Poor data systems makes it difficult to determine accurate throughput rates in the TVET sector and contributes to certification backlogs which impact negatively on employment prospects of students. Proper state-of-the-art data systems at TVET colleges need to be put in place in order to provide accurate data in assuring efficiency.

In all qualification types (NC (V) Level 4, Report 190/1 N3 and Report 190/1 N6) the number of students who completed their qualifications consistently remained substantially lower than the number which wrote throughout the respective period that were under review. Firstly, the quality of education at school level needs to be addressed and secondly, lecturing capacity at colleges needs to be improved to support students appropriately.

The estimated throughput of 10% of the TVET colleges system, coupled with estimated high drop-out rate means more learners fail to realise their potential. The drop-out at first year means young people join the ranks of NEET even after investing 12 years of their lives in education. Foundation courses at TVET colleges are needed to support learners and ensure that a higher percentage obtains their qualifications.

Positive is that the number of learners completing N6 at TVET colleges has been increasing, but N-programmes need to be aligned with industry needs.

The NC (V) level 4 completion rate is on average lower than that of the N6 as a result of poorly prepared learners from secondary school education who find it difficult to cope with the demands of the NC (V). Efficiency at school, career guidance, support to students and better articulation between secondary school curriculum and NC (V) is required.

Complaints are also raised with regard to the quality of the NC (V) qualification which is too theoretical without meeting the needs in the industry. More industry input in curriculums is necessary.

Increase financial support via NSFAS bursary allocations, especially to study at TVET colleges.

Improve the image of TVET colleges among secondary school learners, especially by promoting artisanal study options; by improved qualifications according to industry needs; and address backlogs in certifications.

Unattractiveness of TVET college qualification to employers, making it difficult for young people to opt for TVET qualification. This coupled with the higher probability of being unemployed as TVET graduate compared to university graduate, makes the TVET colleges unattractive. DHET is establishing centres of excellence which are displaying how colleges are to work with private sector in curriculum development and work experience. Lessons learnt in these arrangements will be extended to all colleges.

Lessons learnt from the first selected Centres of Excellence programmes should be expanded to all TVET colleges and adapted for rural colleges.

Protocols for work exposure for TVET College lecturers are needed, to ensure every lecturer is exposed to work environment. Protocols should include processes that allow private sector employees to work in the TVET colleges. All TVET Colleges with limited economic activity in their area such as in rural areas must have simulation training working together with SETAs and industry.

The number of learners who completed artisanal learning programmes have increased and the suggestion is a high likelihood that the Department can meet the NDP target for the production of 30 000 artisans per annum by 2030 if it continues to work within the current trajectory. Sufficient workplace opportunities, however, needs to be arranged to realise completion of qualifications. Availability of training space at state owned enterprises and local government municipalities need to be considered.

Public TVET Colleges must be proclaimed as the main training provider for large-scale artisan training.

The TVET College Council to include representatives from local businesses and SETA CEOs going forward

By funding and increasing capacity at Community Colleges, provisioning of formal and non-formal programmes can be improved to run clustered Public Adult Learning Centres (or CLCs).

With the skills development institutional framework in place, in future more of the unemployed in the country will need to access skills development programmes.

Although there has been some success with learnerships and internships in absorbing unemployed people into the formal labour market, SETA registered and certified numbers do not look good and skills development programmes are currently failing the

youth of this country. With a shortage of work placements, exit strategies for the youth and the unemployed are urgently required and government needs to make arrangements to address national development challenges or incentivise this area of need.

There is an absence of effective monitoring of what works and what does not work within the SETA and NSF environment. Monitoring and evaluation need to be put in place to determine the impact of skills development initiatives.

Indicators and measures need to be put in place to assess whether the value obtained matches the investment that was made in SETAs.

Articulation in the PSET sector

At higher education and training increased training in STEM subjects and investment in Information and Communication Technologies (ICTs) will be required in light of a fourth industrial revolution. Curriculums need to articulate between STEM and the humanities.

There are known transitioning barriers between PSET institutions and in order to be efficient and enable access, articulation between secondary school and post-school institutions, as well as between post-school institutions and qualifications within post-school institutions needs improve.

Resistance of some PSET institutions to permit admission to those with NC (V) qualifications needs to change. The intention was that these programmes would replace the N-programmes. Although the NCV curriculum does include extensive practical components they have not been implemented in many colleges.

Practical skills in workshops and workplaces need to be secured to enable learners to exit programmes such as NC (V) qualifications.

There are some employers who indicated that the N-programme curricula are outdated. Curricula alignment with the needs in the industry needs to speed up.

Equivalence between feeder qualifications must be assured to improve articulation between TVET colleges and universities.

It must be assured that assessors have sufficient subject knowledge.

Powerful online systems are required, especially between distance learning institutions.

Curriculums need to develop both technical skills concurrently with an awareness of ethical responsibilities with an approaching fourth industrial revolution.

Because of globalisation and increased competition from established economies, a strategic adoption of technology is essential in ensuring that the workforce is adequately equipped for change brought on by the fourth industrial revolution;

To sustain the ongoing rapid technological advances that will impact on the workforce, lifelong learning is paramount.

Community college programmes should articulate with TVET college qualifications, as well as employment opportunities, but retrospectively also with schooling.

Cooperation between Community Colleges and other PSET institutions should be incentivised or supported with earmarked funding.

Cooperation between Community Colleges and other PSET can include the franchising of university programmes (e.g. certificate programmes at NQF level 5), the offering of access or bridging (foundation) programmes, co-teaching and assessment of HE programmes in colleges, the development of articulation pathways, the building of capacity, collaborative research, and common links to communities, businesses and industries.

An integrated post-school education and training system can be realised if Adult and Community Education and Training (ACET) is recognised as part of continuing education and training in the PSET sector, including the overlaps and articulation of ACET with technical and vocational education and training and higher education and training.

In view of the overwhelming numbers of people between 18 – 24 years of age in the NEET category, Community Colleges should be designed to offer learning pathways or single courses that are particularly attractive and practically useful especially to this group.

Programmes for NEETS should especially include entrepreneurship components and where possible, also entrepreneurial experience opportunities which will increase the possibility of future success in running SMMEs. Informal traders function mainly as survivalists and there is a need to provide them with generic business skills in order to be able to generate more income.

The education system, especially the CET sector, should be re-organised to retain young people in education for longer, but the goal in this must be to better empower them, rather than simply to keep them out of the NEET category.

The CET system must offer learning pathways to potential learners who have left school without achieving a Senior Certificate, or a vocational certificate that allows them access to further training, or who have not met entrance requirements for HEIs, or who do not have a basic educational platform for post-secondary education.

The CET sector must also accommodate adults who are working or not working and need extra training, or wish to enrol and learn. Regulations in this system should be facilitative rather than restrictive, opening pathways rather than closing them.

A worthwhile investment of public funds would be in articulation programmes among institutions. It would make sense for Community Colleges to establish and maintain strong links with schools, other colleges (both public and private) and popular education initiatives in their areas, and with departments in higher education institutions who sometimes have particular strengths in popular citizen and community education.

Knowledge of all the different types of institution in a region is necessary to foster inter-institutional cooperation and articulation, especially if open and distance modes of delivery expand, since quality must be assured in all forms of delivery.

Quality assurance mechanisms need to be rigorous and coherent and include evaluations of the work of educators or lecturers in order to assure people of the quality and relevance of education and training offered by Community Colleges and facilitate articulation between post-school institutions.

Capacity

The recruitment of academic staff need to be rapidly up-scaled, as national growth projections for student numbers over the next five years point to an increase. It is calculated that the higher education sector will need to recruit at least 1 200 new academics per annum to respond to historical backlogs, cater for staff attrition and to accommodate planned growth.

Since 1994 the number of African lecturing staff at universities had the highest growth rate of all racial groups, although in 2017 the proportion of African lecturing staff (39.1%) was still slightly lower than the proportion of white lecturing staff (45.5%) and transformation measures still need to apply.

Although since 1994 the number of female lecturing staff at universities had a stronger growth rate than the number of male lecturing staff, the proportion of female lecturing staff was still slightly smaller than the proportion of male lecturing staff and transformation with regards to gender still needs to be addressed.

The TVET sector is especially on record as providing poor quality teaching and a key factor in this is a shortage of adequately qualified staff. Currently, college lecturing staff is recruited from the pool of top-performing TVET College students, and TVET college students who went to university and returned to TVET colleges. The higher education sector therefore needs to increase the output of especially PhD graduates to take up lecturing positions either at TVET colleges or universities.

Retired artisans should be utilised in presenting skills development training at CETCs.

There are also concerns about pedagogical capabilities of lecturers at TVET colleges that need to be strengthened and the challenge is to deliver high quality continuous professional development (CPD) to improve teaching and learning at TVET colleges.

The challenge of limited management and administrative capacity at public TVET colleges should be addressed through Continuing Professional Development and appointment of people with business management experience.

All TVET College lectures to participate in workplace exposure to learn the needs and requirements of industry going forward.

For Community Colleges to be a significant improvement on the PALCs, a needed change is for Community College educators to have work contracts of at least two years, and be paid salaries.

A primary degree or diploma, capped by a qualification in adult and/or community education at NQF level 7, will now be required to ensure that educators in Community Colleges are equipped to teach adults and post school youth.

It is recommended to develop specialist qualifications and sponsoring programmes at Masters level for key occupations within the SETA system.

It is recommended that recruitment and retention strategies be developed in order to staff SETAs with people capable of raising the bar in relation to performance and impact.

It is recommended to review the approach of temporary employment where contracts are being tied to the five year NSDS cycle in order to recruit and retain highly competent staff at SETAs.

All SETAs that are government focused should be amalgamated in order to improve funding base and functioning (e.g. AGRISETA, PSETA, ETDP).

Teacher education has been under review since 2007 and initially the focus was on increasing recruitment, while the focus now has changed to quality, as enrolments for initial teacher education at universities has improved in the meantime. The higher education system was perceived to be inefficient with a high teacher training dropout rate and students taking longer to complete qualifications. It was indicated that former teacher training colleges would be prioritised if the need for training facilities were to be identified.

Funding

The inverted pyramid needs to be turned around, but in 2016 about half of all public post-school enrolments were still at universities, about a third at TVET colleges and a meagre 14% at CET. Currently, still lower numbers of students can be accommodated at TVET colleges than at universities and very few of those without a Senior Certificate take up adult education. Policy-makers have attributed this slow change in the PSET structure to a lack of finances. More money is thus required for TVET and community colleges.

Currently Community Colleges do not have the capacity to create skills training programmes and therefore funding from SETAs and the NSF is a challenge. It would require extensive investment in staff, equipment and facility development to establish capacity for skills development programmes and more funds need to be allocated to Community colleges.

One recommendation to increase funding at Community colleges is tax-breaks to encourage SETAs, companies and businesses to contribute more to the post-school sector.

Another option to increase funding at Community colleges is to offer internet access at Community Learning Centres (CLCs) which opens up the possibility for advertising revenue and switching from print materials and photocopying to electronic materials.

If community colleges are expected to remediate the failures from the school system, their funding and general capacity will have to reach a much higher level, as there is little likelihood of local communities having their education and training needs being addressed when only 45% of the total budget is spent on professional staff operating in PALC sites.

To strengthen the research capacity of the TVET and Community college sectors it is recommended that a percentage of the overall funding be allocated to support the increase in internal research capacity in both TVET and CET colleges.

The funding formulas need to be revised and must ensure stable, predictable funding for TVET and Community colleges.

The existing inequality of funding to TVET colleges in different provinces has to cease.

The SETAs need to play a stronger role in ensuring guaranteed funding for the TVET and Community colleges.

Infrastructure and refurbishment are needed for TVET and Community colleges.

State-of-the-art training facilities will be required to train especially artisans for the fourth industrial revolution. We are starting to find co-working to robots in new environments beyond their usual factory floors.

Bridging and foundation programmes, and student support, are required in TVET and Community colleges for which funding is needed.

Funding is required for the reconnection of theory and practice in TVET and Community colleges.

Budget

The redistribution of funding resulting from pressure of populist political interests such as 'Fees Must Fall' protests is short sighted and universities cannot be funded at the expense of the TVET and CET sectors.

In recent years there have been more cuts in funding, leaving the affected TVET colleges with severe budget shortfalls, while student enrolments are increasing. If this trend is to be continued, by 2026 TVET colleges will have no money at all. Funding of the TVET colleges has been inequitable and insufficient and it is proposed that colleges receive equal rand values per weighted FTE student. Additional top-up funding could be channelled to the colleges in the provinces that have historically been severely underfunded.

In the economic development context in South Africa, the role of TVET is particularly crucial to the development of the country's manufacturing sector. However, one of the major constraints to the development of a manufacturing sector and a productive export strategy is the lack of 'middle level' skills in terms of technicians and artisans. It is towards a growth in the 'middle sector' that an expansion in the TVET college provision is necessary.

The only approach to achieve change in the funding of CET is to set a benchmark in the proportion of the national education budget that is awarded to CET. Ideally, as an interim measure, the overall CET budget should be increased immediately to 1.5% of the national education budget, while increasing to 2.5% and 5% over the longer-term.

Approximately R46.21 billion in additional funding is needed for Community Education and Training over the Medium-Term Expenditure Framework.

The under-resourcing of TVET and CET sectors which serve particularly disadvantaged sections of the population, needs to be addressed as a matter of urgency.

RECOMMENDED PRIORITIES FOR THE PERIOD 2019-2030 (NDP HORIZON)

Increasing access to PSET

A decreased number of NEETs that still need access to PSET, as success has been reached in improving access to PSET. Improve further access to NEETs at Community colleges and TVET colleges to gradually decrease NEET numbers further.

Agreements have been established between Department of Labour and Higher Education and Training in working together with regards to training of retrenched workers and using UIF for skills training at both CETCs and TVET colleges. Take this forward, taking cognisance of lessons learned from experience gained.

With the Small Business and Innovation Fund to support small business intermediaries, CET and TVET colleges need to focus on developing entrepreneurial skills in order to

increase more unemployed people's chance to take advantage of opportunities to start own businesses.

CETCs and TVET colleges can incite enthusiasm for entrepreneurial initiatives by providing interesting programmes and courses that skill people to enable them to start own businesses, especially with the Small Business and Innovation Fund receiving R3.2 billion in the 2019 budget year to support small business intermediaries.

Massive Open Online Courses (MOOCs) has been realised and policies need to be adapted according to experience gained in smoothing out problems.

Smaller institutions can be enabled to partner with larger institutions to create interactive formats for online courses.

Roll out connectivity to a larger extent and reach more students to access to PSET.

Increase enrolments at TVET colleges to overtake the number of enrolment at universities.

African and Coloured student's enrolments have increased to reach the 20% target. Enrolments need to still increase more at Community colleges to gradually increase the proportion in favour of Community colleges.

Open up more opportunities for disabled people to access PSET.

Increase the enrolment of females further in SET at universities.

The Gross enrolment ratio over a twenty year period from 1997 to 2016 at higher education has increased and then remained relatively steady since 2016. The stagnation in the participation rate is likely a sign of a system that is under capacity constraints, in terms of factors like infrastructure, funding and staffing. This presents a challenge in a knowledge based economy faced with high unemployment rates at the same time. This will require a well thought through balancing of funds between higher education, the TVET sector and CET sector going forward.

Funding between universities, TVET and CET colleges has reached a better balance and enrolment had the largest growth rate at CET colleges, a slightly slower growth at TVET colleges and a stable growth rate at universities. The balance of funds should be adapted to address needs with regard to infrastructure, staffing, and state-of-the-art equipment to face challenges presented by the fourth industrial revolution and concurrently address unemployment.

Efficiency in the PSET sector

Since education has received the largest share of the 2019 budget and Basic Education an injection of R262.2 billion, school education has improved with a knock on effect on PSET and efficiency as a result has improved at PSET. Mechanisms will still be implemented to increase throughput, drop-out rates, capacity, and infrastructure even further.

Higher education has increased the number PhD graduates to address research and development, although still more PhD graduates need to be produced.

While the throughput rates and drop-out rates in higher education has improved, still more students need to complete their degrees within the allocated time. Therefore foundation face literacy and numeracy at primary school level needs to improve even further, as well as an interest in Mathematics to open up more study options.

Although at this stage career guidance has been established at most schools, especially in socio-economically disadvantaged schools, this needs to be strengthened further and capacity be increased to support learners in making informed choices about PSET.

Students from low quintile schools have been enabled to make better transitions from school to PSET and employment, but this still needs to be strengthened further.

Academic support programmes at universities has been standardised, but monitoring and evaluation is required.

The administration and performance at most historically disadvantaged universities has improved and qualifications are accepted by employers, but this has to be happen at all historically disadvantaged universities.

Data systems have been streamlined at TVET colleges and throughput rates can be determined with more accuracy, while certificate backlogs have been cleared. Regular training courses will need to be attended in order to keep up with new technology.

There has been an improvement in throughput at TVET colleges, although lecturing capacity needs to be improved further.

Foundation courses at TVET colleges have been put in place, but still more support of learners is required to ensure that more obtain their qualifications.

Efficiency at school; career guidance; support to students; and better articulation between secondary school curriculum and NC(V) has been reached, but still needs to improve.

DHET has established centres of excellence to set an example as to how TVET colleges need to engage with the private sector in developing curriculums and arranging work experience. These arrangements need to be extended further to all colleges, especially in rural areas.

Protocols for work exposure of TVET College lecturers are needed in ensuring that every lecturer is exposed to the work environment. TVET Colleges with limited economic activity in their area, especially in rural areas, have been exposed to simulation training, however, still more need to be exposed to simulation training in cooperation with SETAs and industry.

Workplace opportunities for prospective artisans have been arranged, but still more needs to be arranged, especially at state owned enterprises and local government municipalities.

With monitoring and evaluation in place to determine the impact of skills development initiatives, skills development initiatives need now to be changed or scrapped accordingly.

Articulation in the PSET sector

Education and training at universities in STEM subjects have increased but state-of-the-art technology has to be rolled out further in light of a fourth industrial revolution and better articulation between STEM and the humanities needs to be developed.

Still better articulation between and within PSET sectors and the school system is required.

Although the NC (V) curriculum does include extensive practical components they still need to be implemented in more colleges.

More powerful online systems must connect students with distance learning institutions.

Cooperation between Community Colleges and other PSET sectors needs to expand further.

Community Colleges should increase further or adapt offerings in learning pathways or courses that are particularly attractive and useful to NEETS.

Articulation between Community Colleges and other post-school institutions should be improved further.

Capacity

The recruitment of academic staff needs to be scaled-up further to accommodate growing student numbers.

The higher education sector needs to increase the output of PhD graduates further to improve the availability of lecturing staff.

Former teacher training colleges would need to be prioritised if need for training facilities were to be identified.

Funding

Since more money has been allocated to CET and TVET colleges, the 'inverted pyramid' is slowly starting to turn around. However, much more still needs to be changed and more funding needs to be allocated to especially the Community colleges.

The funding formulas need to be revised to ensure stable, predictable funding for TVET and Community colleges.

Budget

There needs to be an increase in funding for CET and TVET colleges to prevent severe budget shortfalls, in light of increasing enrolments.

Seen that TVET colleges are particularly crucial to the development of the manufacturing sector, an expansion in the TVET college provision is further necessary.

The CET college budget have been increased with 1.5% of the national education budget and needs to be increased with 2.5% over the medium term and with 5% over the longer-term.

The budget of TVET and CET sectors which serve particularly disadvantaged sections of the population, needs to be increased further.

RECOMMENDED PRIORITIES IN THE NEXT MTSF: Next 25 years

PSET should actively be developing skills for the 4th Industrial Revolution and lead its research.

The bulk of personnel in the formal economy are from middle society, and their skills and well-being are the means necessary for a stable and well-functioning society. However, traditional manufacturing capabilities will need to be augmented with new skills and requirements such as automation, programming, data and analytics, Artificial Intelligence, system integration and software development.

The increased roll-out and adoption of artificial intelligence driven self-service technologies may create an increased demand for specialised “human to human” customer service channels and interactions and soft skills development will be required.

There is no substitute, at least not yet, for human senses, and the feeling, thinking brain behind them, and yet there is similarly no way for humans to work with the precision and the unceasing drive of a robot. As a result, we are starting to find co-working to robots in bakeries, coffee shops and even vegetable farms, working alongside craftsmen whose trade is authentic only through their unique human creativity. Students need to be prepared for this new work environment.

An aggressive, although strategic adoption of technology is essential in ensuring that the workforce is adequately equipped for a rapidly changing environment. All role players in the PSET environment, including the private sector, should align as a matter of urgency around the real skill demands required in order to not only upskill the existing workforce, but also prepare students to take their rightful place in the future workforce.

TVET courses should be deregistered, if they do not meet the minimum standards or requirements for workplace learning and performance just like in the university sector. These standards should be agreed upon between industry and TVET colleges.

Industry should be central in the development of TVET colleges.

To change perception of the quality of TVET colleges entry requirements should be stricter, and qualifications be tightly aligned to industry.

Budget

There needs to be an increase in funding for CET and TVET colleges to prevent severe budget shortfalls, in light of increasing enrolments.

The CET college budget needs to be increased with 5% over the longer-term

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