

Differentiation Dialogue: Indicators for Development

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Background

In South Africa, the term “transformation” has become a code word for race, even though from the first conference held by the Union of Democratic University Staff Association (UDUSA) on the subject in 1991, transformation was cast as consisting of equity *and* development. Most of the public transformation debate is about equity, but equity is increasingly defined as a programme only for Africans from South Africa. The term “black” is used less frequently. For example, the #RhodesMustFall movement focussed on African, not Indian and coloured, staff. In this regard, the Struggle concept “black” does not seem to count anymore. Development, as the other key component of transformation, has conveniently, or cynically, been ignored. The outcome of the logic of delinking equity from development could well be equal misery for black and white alike.¹

Globally, there is now broad agreement that development is associated with a **massified and differentiated** higher education system and that this is the “missing link” between equity and development. In South Africa, and more broadly in Africa, equity and development cannot be delinked. However, in South Africa there have been significant shifts in emphases, from the 1997 Higher Education White Paper, which was equity- and democratisation-driven, to the National Development Plan 2030 which, while it does not negate equity, firmly leans towards development.

Within the national government, the Department of Science and Technology (DST) is firmly located within a knowledge economy discourse, privileging performance, research and innovation. By contrast, Minister of Higher Education and Training Blade Nzimande questions the notion of the knowledge economy and his department drives an equity/transformation discourse – a manifestation of which is the national Equity Index that attempts to overlay a rather simplistic racial demographic template across the whole higher education sector.

If development were taken more seriously, then attracting doctoral students from the rest of Africa could be seen as part of developing a Silicon Valley-type higher education, research and innovation dynamic, as American scholar AnnaLee Saxenian describes in her paradigm-changing work *Brain Circulation: How High Skill-immigration Makes Everyone Better Off* published in 2002. Saxenian showed that in Silicon Valley more than 35% of start-up innovation companies are owned by foreigners, mainly from East Asian and Eastern Europe.

The DST and the National Development Plan are promoting policies that will drive South Africa towards a knowledge economy, which includes enrolling more postgraduate students and producing more PhDs (the target for 2030 is 5,000 PhDs per annum, almost triple the number that graduated in 2012). In Africa as a whole, the African Union Commissioner, South Africa’s Nkosazana Dlamini-Zuma, has called for thousands more PhDs to be produced on the continent.

While some sectors in South Africa are aiming to pursue the model of a knowledge economy, the country is, in fact, more closely aligned with the model of an industrial age extractive economy with a thin layer of research and development and large numbers of low-skilled workers. But even the modern extractive economy model is not without high-level knowledge skills. Chile has become globally competitive in hi-tech farming (wine and salmon) and mining by massifying higher education and investing more in research and innovation to support high information (knowledge) farming and mining technologies.

¹ One of the much publicised demands from the #RhodesMustFall “uprising” at the University of Cape Town (UCT) was for more black professors. However, the more endemic legacy of Rhodes in South Africa is a form of monopoly capitalism in which unbenefited minerals are exported and the main profit comes from cheap, low-skilled labour – an economic model that does not require many PhDs (black or white). But this was not debated at UCT by the academics or the aspirant academics.

Important questions for South Africa include: What kind of knowledge economy should it pursue? And, what high-value skills would be required to support the adopted model? Such questions in turn pose a more strategic set of questions about how many PhD graduates South Africa actually needs and in which fields. Consideration of such issues would confront South Africa with the dilemma that it cannot reach its doctoral targets without recruiting many students and academics from the rest of Africa.² As in the United States, and particularly California, South Africa lacks the resident human capital for a dynamic knowledge economy.

Imperatives and discourses

Underpinning the South African higher education debate are three major discourses.

1. *The knowledge economy discourse*

The international discourse on the value of doctorates is largely about the contribution to and place of PhD graduates in the knowledge economy. There are two strands to this debate.

One is about strengthening universities as knowledge producers. In this approach, increasing the number of doctorates fosters high-level research capacity, helps to disseminate new knowledge through international networks (such as conferences, journals and books) and links to research and development in different ways through an innovation cycle. In this sense, doctorates both strengthen universities (and specifically the quality of their outputs) and contribute to the broader knowledge economy.

The second aspect to the discourse is the extent to which doctorates contribute to “talentism”: the global search for talent identification. The concern is with high-level skills, both research and analytical, outside the university, be it within industry or the public sector. The debate, rather ironically, is about whether there are too many doctoral graduates (at least in the US) and their impact on the higher education system.

In South Africa, policymakers need to address the issue of skills capacity and whether the country possesses the human capital to develop a true knowledge economy.

2. *The developmental discourse*

In developing countries, particularly East Asia, Latin America and even in South Africa (in the National Development Plan 2030), the PhD is regarded as integral to the development project – even if it is not clear whether PhDs help to drive growth, or are products of the knowledge economy. Most commentators express some unease about how and the extent to which PhDs actually contribute to economic development. They ask why in certain countries there are unemployed PhDs and consider whether PhD “factories” can lead to poor quality qualifications, thus undermining the essence of the skills embedded in the traditional PhD, namely independent thinking and writing. Disquiet has also been expressed as to whether a too direct link to development may not privilege the sciences, engineering, and business at the expense of the humanities and social sciences and whether an over-emphasis on economic development may undermine the ideal of contributing to a better society? However, there appears to be general agreement that the driving force for doctoral education has gone well beyond merely training the next generation of academics.

² For South Africa, the rest of Africa is crucial. In 2000, South Africa enrolled 975 foreign students (17% of total enrolments), of which 59% came from the rest of Africa. By 2012, the percentage of foreign students had increased to 33%, with 83% of all foreign doctoral enrolments coming from the rest of Africa. Increasingly, South Africa is not attracting foreign students from the rest of the world, with miniscule numbers coming from the other BRICS (Brazil, Russia, India, China, South Africa) countries.

In South Africa, the National Planning Commission and the DST are firmly located within a knowledge economy discourse. Their stated goal to triple the number of doctoral graduates annually is driven by an intention to improve quality within higher education by increasing the percentage of academics with PhDs from 35% to 75%. Thus, although there seems to be little agreement on the role or contribution of the PhD to the knowledge economy; the kind of knowledge economy Africa is seeking; and whether Africa needs more PhDs to improve academic quality, there is a tacit consensus that doctoral training and outputs need to be increased and improved. However, the exact nature of the kind of knowledge economy that South Africa is pursuing and the skills required for this need to be framed more clearly.

3. The redress discourse

Within the South African context, the dominant discourse (especially in the 1990s) around the value of doctorates was embedded in notions of equity, race and gender and how to address the imbalances created by the past. In post-apartheid South Africa, a common South African practice is to use transformation as a euphemism for racial issues, despite the term's many other interpretations and meanings. Govinder, Zondo and Makgoba (2014: 1) illustrate this well in the following quote:

In the South African context, transformation refers more specifically to change that addresses the imbalances of the past (apartheid) era. It has many facets, including demographic and systemic change. However, regardless of the different components and qualitative measures for transformation, the ultimate (and most important) indicator is that of demographics.

The knowledge economy, developmental and redress discourses have all shaped the debate on differentiation within the higher education sector in South Africa at the undergraduate as well as postgraduate levels. To unpack this debate and support the best efforts of those shaping the sector's future – including the government, universities, students, civil society and business stakeholders, as well as funders – the Centre for Higher Education Transformation (CHET) held a dialogue in August 2016 in Cape Town on differentiation within the sector and how this may be most effectively measured and pursued to promote both equity and development in South Africa.

Introduction to the differentiation dialogue

The differentiation discussion, which has become increasingly urgent since the introduction of democracy in South Africa in 1994, is now considering not just universities but the whole “post-school” sector with a particular focus on the technical and vocational education and training (TVET) colleges. The debate has also recently focussed on university finances after the #FeesMustFall protests brought greater public attention to bear on this issue. Pressure has mounted for a more unified system of financing higher education and demands have been made for a national education regulator – the educational equivalent of the National Energy Regulator (Nersa) – that can rule on issues such as student fees.

The debate should also focus on the contribution that the higher education sector could and should make to South Africa's knowledge economy and overall economic growth. Equity will just become equal misery without growth. Equity without development can lead to contestation over resources. Development without equity can lead to unrest and is not politically sustainable.

It is noteworthy that many of the present funding restraints on higher education, which are creating tensions and contestation, would fall away if national growth rose to 5% and the education budget increased accordingly. The indicator framework that the government is drafting should be used to

measure and promote the contributions made by higher education to national development and economic growth rather than merely comparing one university with the next.

The academic core: performance and change indicators

The 2013 White Paper for Post-School Education and Training states that a continuum of institutions is required in the post-school system including universities with differentiated missions.³ It proposes that higher education institutions should have clearly defined mandates and that differentiation among these should be responsive to the contextual realities of the institutions, with the programmes on offer developing over time as appropriate.

It follows that once the mandates of the higher education institutions have been established, specific goals and targets can be ascribed to each body and its performance can be measured accordingly.

In support of this process, the Centre for Higher Education Transformation has developed a series of common performance indicators for measuring educational goals generally drawn from relevant government documents such as the National Development Plan. It has measured the performance of the academic core of institutions against these.

The aim is to measure the relative strengths and weaknesses of the higher education institutions and how these have changed over time. It is proposed that differentiation be based on such an analysis of performance and institutional mandates and that related targets be forged accordingly. In particular, the analysis and the shortcomings that are revealed should support the development of effective and comprehensive mandates for technical colleges. Further assessment of performance within higher education institutions may then be measured relative to the specific mandates and goals ascribed to each body within a differentiated system.

In response to increasing financial strain at universities in South Africa, CHET has included a new indicator in its analysis. This “defensive interval” indicator calculates how long a university can survive a crisis that cuts off its funding and continue to operate, by measuring its highly liquid assets and cash reserves against its monthly expenditure.

CHET measured the extent to which the 23 universities in South Africa⁴ fulfilled nine key mandates as measured by 16 accompanying indicators: strong enrolments in science and technology; strong doctoral enrolments; favourable student to academic staff ratios; experienced and well-qualified academic staff; high undergraduate pass rates; high outputs of graduates; high outputs of Master’s and doctoral graduates; high levels of new knowledge production by academic staff; and financial sustainability.

CHET’s analysis suggests that the 23 universities in South Africa could be divided into three groups, which are differentiated by performance. Seven universities are research-led. In order of overall average performance against the nine key mandates, these are: Cape Town, Stellenbosch, Rhodes,

³ This section is based on the presentation, “Academic core: performance and change indicators”, made by Ian Bunting and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016.

⁴ The 23 South African universities are: Cape Peninsula University of Technology (CPUT); University of Cape Town (UCT); Central University of Technology (CUT); Durban University of Technology (DUT); University of Fort Hare (UFH); University of the Free State (UFS); University of Johannesburg (UJ); University of KwaZulu-Natal (UKZN); University of Limpopo (UL); Nelson Mandela Metropolitan University (NMMU); North-West University (NWU); University of Pretoria (UP); Rhodes University (RU); University of South Africa (Unisa); University of Stellenbosch (SU); Tshwane University of Technology (TUT); University of Venda (UNIVEN); Vaal University of Technology (VUT); Walter Sisulu University (WSU); University of the Western Cape (UWC); University of the Witwatersrand (WITS); University of Zululand (UZ); and Mangosuthu University of Technology (MUT).

Pretoria, Witwatersrand, KwaZulu-Natal and Western Cape. Five are primarily teaching-led universities: in order of performance, North-West, Free State, Nelson Mandela, Johannesburg and Fort Hare. Eleven are primarily undergraduate universities: in order of performance, Cape Peninsula, Limpopo, Durban, Tshwane, Zululand, Vaal, Central, Unisa, Venda, Walter Sisulu and Mangosuthu.

The analysis shows that it is difficult to establish a comprehensive mandate for all universities, given the wide range of differences in performance against the nine common mandates and accompanying indicators measured and analysed by CHET. A wide range of specific factors relating to, for example, cultural and historical background; academic teaching and research capacities; the mix, strength and availability of courses at different levels; and financial assets may be inferred from the variations in performance at the different institutions. However, some common issues can also be identified, such as a low percentage of professors among academic staff in general.

It is hoped that CHET's analysis may inform a process in which the government coordinates with universities to shape contracts based on individual mandates.

CHET's analysis also proposes indicators for change itself, which is not taken into account in the current equity-based outlook. The idea behind these indicators is that dynamism needs to be introduced into the performance measurement system. This analysis considers student enrolments; academic staff; revenue and expenditure; and research outputs at the universities of KwaZulu-Natal, Pretoria, Cape Town and Stellenbosch.

The analysis shows a general rise in African students across all four institutions, although the rise at Stellenbosch has been more dramatic since that institution was starting from a low base, indicating an urgent need to adapt management approaches within that institution. Meanwhile, the percentage of African students at the University of Cape Town has fallen.

Further, the indicator for the change of ratios between black and white students should not be interpreted to mean less white students are going to universities. The race issue and contingent concerns over identity shape responses to surveys on the topic and possibly how universities monitor diversity. Ten percent of students chose not to declare race, although these respondents were not necessarily white. In addition, responses from mixed race students often defy categorisation.

In relation to the profile of the student body, xenophobia can become a factor in discussions when international student enrolment is perceived as outstripping that of local students. Forty percent of doctoral students are not South African. But, from a development point of view, this may be considered beneficial if such graduates are encouraged to remain in the country.

Comparing the changing proportions of black and white, and male and female students at South African universities, it may be argued that the racial and gender profiles of the academic body should also change to create greater balance. The percentage of white academics at UCT was found to have risen.

Academic staff members are increasingly employed on a casual rather than tenured basis, although the percentage with doctorates as their highest qualification has grown.

In relation to resources, increases in revenues from the state have not kept pace with the increase in enrolments, that is, state revenue per student is down, which is a source of discontent among vice-chancellors. Furthermore, third-stream funding on which research institutions in particular rely for many of their outputs is down. In terms of published research, subsidies for articles appear to be an important driver of outputs.

The crisis generated by the #FeesMustFall student protests has focussed attention on the need to address fiscal shock or unanticipated circumstances. The amount of money held by universities in highly liquid unrestricted assets (HLUA), which may be used in a crisis, can be regarded as an important measure of sustainability. Nationally, such liquidity may fund universities for several months, although the levels of relative liquidity vary greatly among universities. In this regard, CHET has extrapolated a financial health indicator for each university's "defensive interval", which measures how many months a university can fund itself, using its functionally and legally liquid (cash and other financial) assets.

Categories of financial health indicators

Research suggests that there are two main dimensions that may be employed in tandem to assess the financial health of South African public universities: capitalisation and liquidity. The usual commercial ratios comparing liquidity, solvency, efficiency and profitability appear to be insufficient to the task.

The capitalisation dimension provides a measure of equity sufficiency and of the relative sizes of capital components (especially equity compared with debt).

The liquidity dimension provides an assessment of the contribution made by highly liquid, unrestricted assets. These are assets that can be identified from the financial statements as both functionally and legally liquid – freely accessible to institutional managers. Since these are the assets that are immediately available to address financial emergencies, HLUA provides a crucial measure of a university's financial condition.

Universities that tend to score most highly according to the capitalisation measure are those with proportionately smaller liabilities and proportionately greater equity. Universities that tend to score most highly according to the liquidity measure are those with a larger proportion of highly liquid unrestricted assets, as well as proportionately large endowments and endowment returns.

A capitalisation-liquidity analysis of the financial health of South Africa's universities in 2014 enables their differentiation into four distinct categories: those with strong capitalisation and strong liquidity (Rhodes, UJ, UCT, Unisa, Stellenbosch, Pretoria and UFS); those with weak capitalisation and weak liquidity (Walter Sisulu, Fort Hare, MUT, Limpopo and North-West); those with weak capitalisation and strong liquidity (Venda, CUT, UWC, Wits, Nelson Mandela and UZ); and those with strong capitalisation and weak liquidity (DUT, CPUT, VUT, TUT and UKZN).

Differentiated fees

The focus on universities' and students' immediate financial concerns can lead to an underestimation of the endemic problems in the higher education system.⁵ More money will just become bail-outs unless these are addressed. Effective education-funding systems are actually determined by the state of a country's economy. For example, South Africa may not solve its problems by copying a funding system that depends on high employment rates (and correspondingly large state revenues and overall economic health).

The role of education in overall national development is crucial. Equity initiatives to redress historical wrongs in South Africa are also an essential aspect of the education system. A tension between equity and development was posited by Saleem Badat, Zenariah Barends and Harold

⁵ This section is based on the presentation, "Differentiated Fees for Development", made by Nico Cloete and subsequent discussion on this at the "Differentiation Dialogue: Indicators for Development", Cape Town, 21-23 August 2016.

Wolpe⁶ before the introduction of democracy in South Africa in 1994 and successive higher education policy initiatives have failed to resolve it.

It is now widely accepted that a massified *and* differentiated system is required to respond to equity *and* development. A key aspect of massification is diversity of institutions, skills and opportunities. This means a diversity of institutions with a range of different and often contradictory functions which must be managed. The present climate of economic austerity presents useful opportunities for internal differentiation within the education system.

The creation of a successful knowledge economy requires a great diversity of skills programmes at the post-matriculation level. These should foster a large cadre of workers with post-matric qualifications for jobs that require more complex information processing and problem-solving; offer solid general and vocational-orientated education mainly at the undergraduate level to produce “self programmable labour”;⁷ and provide high-level professional training enabling new knowledge production with a high percentage of staff with doctorates at a select group of universities.

The immediate legacy of Blade Nzimande’s tenure as Minister of Higher Education and Training, partly as a response to student #FeesMustFall protests, has been a shift of focus and funding within the post-school system. Increased funding has been offered to the 1.037 million petit-bourgeois students at the top of higher education pyramid but not to the 3 million 18-24-year-olds who are not in education, employment or training. Recent student demands for free education should be considered in this light.

In the debate on free higher education, the issue of what constitutes “free” and what doesn’t – for example, accommodation – needs to be made clear. In addition, in the discussion of private and public goods, it should be acknowledged that private returns can also constitute public returns – although when the former are so high, there should perhaps be a cost.

Higher education increasingly confers substantial private benefits worldwide. In sub-Saharan Africa, private returns on higher education are higher than those on primary and secondary education. South Africa has the highest private returns on higher education in the world and the highest inequality indicators. The more equal the country, the lower the relative benefits of higher education. Conversely, in South Africa with its high returns on tertiary education and high levels of inequality, free higher education proportionally privileges the privileged.⁸

Higher education’s private benefits include higher salaries, savings, professional mobility, life expectancy and quality of life. Public benefits include greater productivity, increased consumption, workforce flexibility, reduced crime rates, greater appreciation of diversity and improved ability to use new technologies.

South Africa is faced with backlogs and financial constraints in tertiary education as a result of growth and wider participation. High efficiency economies and innovation economies, which have strong research and technocratic capacities, have high participation rates. By comparison, South Africa’s participation rate in tertiary education is too low at 20%.

It has been found that, of the 1 million pupils that start Grade 1, 100,000 will enter university, 53,000 will graduate after 6 years and only 1,800 will win doctorates. The completion rates are poor. Too many students – many with an inadequate secondary education – stay in the undergraduate

⁶ Saleem Badat, Zenariah Barends and Harold Wolpe, “The Post-Secondary Education System: Towards Policy Formulation for Equality and Development”, Education Policy Unit, University of the Western Cape, May 1993.

⁷ Manuel Castells, *The Internet Galaxy: Reflections on the Internet, Business, and Society* (Oxford: Oxford University Press, 2001).

⁸ Claudio E Montenegro, Harry Anthony Patrinos, *Comparable Estimates of Returns to Schooling Around the World* (Washington DC: World Bank Group, 2014).

system for too long, highlighting the importance of ensuring that the students who enter the higher education system are ready for university.

Honours degrees are not funded by the National Research Foundation (NRF) or the National Student Financial Aid Scheme (NSFAS) which prevents many black students from going on to study for Master's degrees and PhDs. By contrast, 80% of white children use family and private money to fund honours degrees. In addition, high drop-out and re-registering rates indicate that many students cannot afford to continue their studies, highlighting a need for a long-overdue overhaul of how subsidies for honours and other degrees are calculated.

Another drawback is that it is currently an all-or-nothing system: students either drop out with no discernible benefits or graduate. A high premium is placed on tertiary certificates and the acquisition of diplomas is relatively low. In this context, it may be worth offering two-year degrees, and/or creating beneficial exit points for students within the degree structure and curricula so that students can leave with a useful qualification – although this may properly be the responsibility of colleges rather than universities.

Higher education is a poor mechanism for redressing inequality. If the poor participate, they will earn more, but the middle class will earn even more and benefit to a greater extent. Hence, reducing fees may in fact contribute to inequality. Permitting the contestation on education funding to play out on university campuses may only exacerbate inequality. The actual issue for the poor is that they generally don't qualify for higher education, while the middle class, who do qualify, are thus the greatest beneficiaries. The limits of the contribution to overall economic growth made by students in higher education should also be acknowledged in the broader debate about funding.

Some of the most equal countries in Europe have good vocational education systems, which are considered crucial for economic growth and raising people out of poverty. Adopting such a model could help to alleviate much of the education burden presently borne by the tertiary sector as the result of a school system that fails to achieve sufficiently high standards. The importance of developing and expanding the vocational sector should be prioritised in the government's education plans.

Despite antagonism to vocational education based on historical objections to the Bantu system which played a role in creating it, this is the sector that can help to bring the poor into the lower middle class most effectively. However, the fast-growing TVET sector has poor completion rates and is in need of a new identity. The college sector should be clearly differentiated between providers of National Certificate (Vocational) Level 4 qualifications and a post-secondary system – the latter with clear articulation to universities and catering to those who drop out. The private and public goods that would accrue from providing free education to students at this level would be relatively substantial.

Investment in higher education enables a country to maintain a competitive edge in the global knowledge economy. Research outputs from universities and the broader research and development and science sectors can promote economic growth and should be funded accordingly. In this regard, the South African government should review the relatively low percentage of its gross domestic product – 0.62% – that it spends on higher education, which produces 80% of national research outputs.

However, while universities can make a significant contribution to development through high skills training and new knowledge production, they are not an efficient mechanism to reduce inequality since they can only offer a ladder out of poverty to a limited few.

Consequently, a three-tiered differentiated system catering to the poor, middle-class and rich, which should include incentives to avoid warehousing, may provide a useful framework for student fees.

At present, many poor students face a “revolving door”: they are admitted to higher education but don’t graduate which leaves them “poor with debt” and angry.⁹ Universities need to select poor students more effectively and offer them greater support with almost free higher education. In this regard, social support in particular can be crucial.

Different schemes may be available for different kinds of middle-class students, who may be relatively poor or relatively affluent. With parents in employment, middle class students enjoy better success rates and labour market opportunities. Subsidised fees may most usefully be targeted at lower middle class students, who are the most likely to maximise their benefits. Members of this group may be funded with loans and grants dependent on their completion of courses.

Although the contribution of privately funded fees as a percentage of the higher education budget increased between 2000 and 2013, the current fees are a bargain for the wealthy, which includes the children of the new political and business elite in South Africa. Relatively high fees should be introduced for the rich.

Deferred payments by students in the “missing middle” – who are not poor enough for NSFAS loans but not affluent enough to qualify for commercial ones, as well as those who do qualify for bank loans but can often only afford one child at university – are also an option. However, a range of conditions are required to create funding for this funding model: high pass rates (otherwise those who complete are paying tax for those who don’t), good returns on a university degree and an efficient tax system. In South Africa, despite high graduate employment, substantial returns on higher education, and efficient taxation, the current low pass rate may not be able to sustain this funding approach across the board.

Meanwhile, the NSFAS system for supplementing higher education revenues almost collapsed between 2010 and 2014, with the failure of debtors to repay their loans costing the government an estimated R3.7 billion in uncollected recoveries.

The South African government may usefully consider the Chinese model, which is one of substantial government spending, massification of access and high private contributions, often through rural credit cooperatives, similar to *stokvels*, which lend money to poor students. By contrast, the South African system with relatively low government and private contributions caters only to an elite. Unequal primary and secondary education produces undemocratic higher education outcomes.

Lack of coordination in the higher education sector among the government, vice chancellors and students will cause another crisis. A new national Pact should be forged linking higher education and its funding to economic development.

The challenge of linking data-driven targets to a differentiation strategy: a UCT work in progress

As part of a five-year strategic plan starting in 2016, UCT has declared that it is seeking to be a research-intensive university that makes a distinctive contribution to knowledge locally and globally.¹⁰ The goal is informed by UCT’s engagement in CHET’s Higher Education Research and Advocacy Network in Africa (Herana) project, which was initiated to explore the link between universities and development on the continent. UCT seeks to help foster the promotion of a knowledge economy within Africa as a whole, according to the motto “if Africa fails, we fail”.

⁹ Nico Cloete, “Free Higher Education: Another Self-destructive South African Policy”, Centre for Higher Education Trust, 2016.

¹⁰ This section is based on the presentation, “The challenge of linking data-driven targets to a differentiation strategy: A UCT work-in-progress”, made by Marilet Sienaert and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016.

However, arguably, few people have internalised the “if Africa goes down, we all go down” idea. Its successful adoption must be accompanied by real drivers of change and cultural shifts.

In response to UCT’s goal to make a distinctive research contribution, gaps were identified within the institution’s administration of its research efforts and a plan to create a cost-effective, consolidated approach to address these was developed and agreed.

The new strategy for research intensiveness included improving the pipeline for future academics and supporting the university in recruiting and retaining top scholars. Indicators and data-driven targets were drafted for these goals. In relation to improving the post-graduate pipeline, these included the number and kind of post-graduates, completion rates and the impact of professional development and mentorship interventions on outputs. In relation to recruiting top scholars, these included numbers and demographics, research income, NRF ratings, research outputs, evidence of esteem and optimal partnerships.

A range of policy, training, administrative and data-management methods were proposed to enable the university to achieve its research-intensiveness targets. Impediments to implementing these were identified and solutions sought. Identified challenges included slow human resource-driven processes, a lack of data analytics capacity, outdated manual processes and procedures, and administrative systems working in silos.

For example, applicants for postgraduate places faced difficulties in completing applications online and long, discouraging turnaround times. Centralised processes for issuing grants were onerous and time-consuming. Outdated manual administrative systems were unable to produce and analyse data efficiently.

As a result, UCT’s research office identified a need for an enhanced electronic research administration (eRA) to help the university to remain competitive and raise funds in a rapidly changing global research climate. The nature of much research is changing with the arrival of increasingly massive data sets across all disciplines, high performance computing, open access publication and increased sharing of research data. Competition for international research funding has increased. Funders often now require interdisciplinary, team- or consortia-based approaches to solve complex problems and impose much more stringent compliance criteria. For example, data management plans are now compulsory to win international funding, which is crucial to many students seeking a Master’s degree. Research and postgraduate training has become a business in its own right. With increased student and staff mobility, top scholars can choose among universities. University researchers must also often work across structures with businesses and governments.

UCT’s eRA system, which provides consolidated data and analysis on research outputs and projects, is crucial to meeting these demands. The integrated data-management service seeks to provide directed and comprehensive guidance and support to all researchers, irrespective of their level. It integrates international, domestic and internal research-support opportunities and services. The research hub has also created economies of scale, offering standardised processes, enabling effective monitoring and compliance and supporting accurate reporting to enable the formulation of policies and strategies. It has been aligned with transformation initiatives led by the university and the Department of Higher Education and Training (DHET).

In designing a research hub that would guide users to where they should go, the biggest challenge was breaking through the silos within the university – departments tend to protect their turf. The hub has extended UCT’s culture of collaboration internally and with external partners. Universities cannot continue to fund research in the way that they have been doing and have to broker new partnerships that offer expanded, improved services. In particular, the project looked at integrating student exchanges with research partnerships as a part of new interdisciplinary ventures. The

emphasis here has been on multilateral partnerships. The new data-management system for research helps UCT to identify where such ventures and participants lie, which also disrupts silos.

The new service is work in progress, but once fully implemented, should improve grant management processes and reduce the number of offices involved in grant applications. Specialist proposal-writing advice has been made available. eResearch analysts look at how to cost eResearch into grant finances. Models for proper research contracts including risk-management provisions have been produced. The hub monitors research-support outputs across silos. The new service also seeks to communicate and promote UCT's research capacity and collaborations, raising the university's visibility domestically and internationally, including by exposing undergraduates to the excitement of what is happening at the research level. In terms of transformation, the hub promotes and monitors engaged scholarship – grant applicants must include proof that their research is socially responsible and engages with communities.

Within the current climate of austerity, the service is being implemented as a once-off investment that would save money in the longer term. Since universities cannot continue to fund research and other functions as they have, integrated data-management within the services that support differentiation may also provide a model for change. At UCT, the new research hub is already enabling the brokering of new partnerships, resulting in expanded and improved services. It may be worth seeking to replicate such data-management systems across universities to avoid duplication of efforts and foster efficiencies. Such systems may also inform the development of external national frameworks such as the NRF.

Differentiation discourses in the forthcoming national plan

Based on the 2014 White Paper for Post-School Education and Training, a national plan is being drafted which differentiates the roles of the community education, TVET and universities sectors within an expanded system and also outlines the articulation envisaged among these sectors.¹¹

The plan seeks to offer a vision of what is needed within the community education and training sector, which targets those who missed school or didn't matriculate. This vision should define who are the sector's clients, what programmes may be offered, and what should be its goals, which will extend beyond its previous mission of merely helping adults to matriculate. It could potentially serve 18 million people compared with the 200,000 people that it is currently servicing with a budget of about R1.7 billion.

In the TVET system, the focus is on providing appropriate programmes and enabling-qualifications linked to work and being employable. Planning is crucial in this sector, which has previously developed in an ad hoc way and has sometimes suffered from its ambiguous character – TVETs often operate as school-level colleges with some post-secondary courses as well. In addition, it has been found that some TVETs are so poorly managed that they should be placed under administration. Some have no links to industry. Overall, the numbers of student within the sector is hard to ascertain. If the post-secondary component in TVETs were expanded and the sector made more efficient and attractive to students, it would ease the pressure on universities, as well as fulfilling a developmental role.

By contrast, planning within the higher education sector, which is more efficient and can provide reliable data, is relatively advanced. The key issue in this sector is the creation of an overall unified framework. The differentiation sought within the sector is softer. Nevertheless, clear institutional mandates should be set so that appropriate indicators can be developed and the future path of the individual universities can be planned more effectively. The capacity and content of institutions and

¹¹ This section is based on a presentation made by Diane Parker and subsequent discussion on this at the "Differentiation Dialogue: Indicators for Development", Cape Town, 21-23 August 2016.

the courses that they offer effectively will help to shape these mandates. However, Programme Qualification Mixes (PQMs) have proved a weak driver of effective planning.

In general, the current draft national plan considers the context within which institutions operate, their nature, their funding and how their capacity may be developed. It considers equity, demographics and performance and has identified huge variations in these areas. It considers staffing and recruitment issues such as the professoriate. It analyses curricula. The data on which the plan is based identifies which programmes the universities are actually implementing – whether these are professional, career-oriented and so on – so that their current roles and future mandates can be defined.

The plan considers the quality of post-school programmes, particularly in relation to student success rates. For example, distance-learning programmes have only produced a 14% throughput in ten years, although a third of all South African students join these.

The plan seeks to create an effective post-schools sector that adheres to quality standards and is governed by an appropriate monitoring and evaluation system under the government's aegis. It also considers funding issues and how the Skills Education Training Authorities may be most effectively deployed.

The plan also reviews the issue of articulation – designing qualification to provide useful exit levels, and offering nested degrees and shorter pathways. The plan seeks to nurture appropriate skills across the three areas of the post-school sector and incorporates submissions from the Department of Labour.

The plan will propose required policy and legislative changes, although a one-size-fits-all post-schools Bill will probably not be recommended. The DHET's job will then be to support the new system, although this may require substantial internal reorganisation and capacity-building.

In terms of differentiation, the plan looks at whether there will be soft or hard barriers among institutions. The roles of TVET and community colleges should be clearly differentiated. The roles of universities within the overall post-school system may also be differentiated more clearly. For example, some universities are more research-intensive, others offer research plus teaching and still other offer just teaching. By definition, a university has to have research programmes, unlike colleges. In this regard, the plan is assessing universities that were defined as “comprehensive” – integrating university and technikon-type programmes – and the qualifications that they actually offer. At present, different institutions are offering a range of qualifications that may not always match their current mandates.

Questions of institutional capacity, infrastructure and enrolments will be asked to devise an integrated roadmap that offers appropriate diversity of facilities and educational services without unnecessary duplication. For example, in relation to facilities, it may not be necessary for all universities have to build new medical buildings. In this regard, the plan looks at using current capacity more effectively.

Differentiation should not only be construed in structural and institutional terms. For example, some TVETs are closer to communities than others. In this regard, the ethos of aiming for an “upward” trajectory rather than equitable access adopted by some TVET managers should be challenged. Acknowledging historical inequalities and the need not to reinforce those, there is a need to invest in community-targeted programmes as well as broader aspirations and national needs.

To align the post-schools sector with the National Development Plan would require huge, currently unavailable investment. However, the current education plan seeks to enable better targeted

investment in the higher education sector, although inadequate data collection remains an impediment to this.

The plan also seeks to balance equity and development, although a Pact – a broad agreement between government, universities and core socio-economic actors about the nature of the role of universities in development – remains a distant prospect. Nevertheless, greater collaboration between the Department of Science and Technology (DST), DHET and other government departments could improve the political and other support offered to universities and also identify more pockets of funding for the higher education sector.

The relatively thin nature of the 2014 White Paper combined with its broad post-school remit has encouraged a certain amount of policy development on the hoof in the present planning process and also created uncertainty about how elaborate the plan should be. The current austere and uncertain fiscal climate has also posed difficult questions over how ambitious the plan should be in its scope.

The current plan has been criticised as lacking realistic targets, due to the confusing nature of the White Paper from which it emanates and for seeking to collapse the useful distinctions between the three areas of the post-school sector. In the university sector, the advances that may have been made by forging individual contracts for the universities could be undermined unless the capacity of DHET, which is overseeing these, is strengthened.

The loss of confidence of South African higher education?

Student protests sparked a drastic change in the public perception of how higher education is funded.¹²

In terms of the students' agenda, statements crafted for political purposes by groups of protestors were often taken at face value within the public discourse, which is an "epistemic fallacy". In addition, a false perception has been created that the students form a homogenous group with one, clear set of demands. Students views may be interpreted more generally as a sign of the times and perhaps mark a change in how the younger generation views their elders.

The pedagogical relationship between academics and students is often quite intimate, although also necessarily distant, and is characterised by unequal power relations. For academics, the protests generated confusing messages and signalled limitations on their sharing of perspectives with their students. Some academics wanted to be in solidarity with their students – regarding their demands for greater social equity and disruptive methods as just – but learnt that they also needed to respect the students' space. Some sought to signal their bourgeois fears to students about the impacts of the protests. But such comments were not always well-received. As one student remarked: "Not everyone agrees with the burning of artwork, but we really don't want to be criticised by white people."

Problems with the protests included that they disrupted studies, broke the focus of students preparing to deadline for exams – for example, UCT was shut down for three weeks at the end of 2015 – and generated an atmosphere of stultifying fear.

The perception that there is a loss of confidence in South Africa's education and broader social system has been present since the introduction of democracy in 1994, although the student protests brought this home to certain sections of society for the first time. The larger question is whether and how such a loss of confidence may be experienced.

¹² This section is based on presentations made by Jenni Case, Molapo Qhobela and Ian Scott and subsequent discussion on these at the "Differentiation Dialogue: Indicators for Development", Cape Town, 21-23 August 2016.

For the parents of many poor families, the expectation is still that the education system may lift their children out of poverty. For many in government, some universities are perceived to have lost their public-purpose mandate. Some decision-makers in the private sector have expressed a lack of confidence in the value of the higher education system – or at least some institutions within it. For example, recruiters may consider hiring graduates from UJ but not Venda, or students of a particular race, indicating a perceived hierarchy among and within universities. The protests have also exacerbated serious donor concerns about the direction, or lack of it, apparently being taken by universities. In addition, such uncertainty may also deter researchers, already suffering a lack of capacity and heavy workloads, from continuing within the South African higher education system.

Many prospective students have high expectations of how they will benefit from higher education – in particular, the access that they may subsequently gain to lucrative employment opportunities. Stellenbosch graduates face a low, 4% unemployment rate. Only 5% of UCT graduates fail to find work. At UWC, the rate is below 10%, although 18% of students who graduate from CPUT are unemployed. Many employers hire from a small pool of universities. The sense that higher education offers the only way out of poverty has been reinforced, narrowing the perceived ladders for escape from the poverty trap. Meanwhile, the offspring of middle-class families see university degrees as a right and the way to maintain privilege.

Drop-out rates are high, particularly among students from poor background, which can affect the confidence levels of entrants. It would be preferable to manage the expectations of many matriculants, many of whom perhaps should not be entering universities, at least indicating the real scale and difficulties of the task that awaits them.

Compared with graduates from other African countries, those from South Africa have the highest expectation that they will work for government and the lowest drive to make their own businesses. In this regard, the education system needs to develop more creative ways to escape the poverty trap.

The present crisis of legitimacy is comparable with that in the mid 1980s when South African townships were being set on fire and universities were desperate to appease students, at least until a state of emergency was declared. This present crisis also has exerted serious pressure for change and has shaken the self-belief of many wielding power, particularly among academics.

However, the current protests are narrowly focussed and may be serving the specific self-interests of particular social groups and political parties. Middle-class students have led many of the protests, using the poor in a bid to access resources. Meanwhile, there are students and staff who reckon that the country is poised in a revolutionary moment and are seeking to shape this on South African campuses. The protests have arguably distorted perceptions of the real funding challenges faced by the higher education sector

The protests have exacerbated a sense of shame among many academics about the worth and actual impact of their work. The intellectual capital of many in academia has been denigrated as illegitimate. The form and content of courses being taught has been rejected by the prime beneficiaries – the students. The system is only graduating 20-30% of students in time, 45% are not graduating at all, and most of the failures are those whom academics are seeking to uplift. What greater expression of disaffection than unrequited effort?

The apparent guilt shown by many academics in reaction to the protests may also stem from an implicit acknowledgment of their own roles in the steady deterioration in the conditions for teaching and learning at universities, which has stemmed from more than just deteriorating academic-to-student ratios. Older academics sometimes feel the world, and particularly that from which the students come, has moved on and they have not been able to keep up. Many academics simply

avoid teaching, which can be seen as impeding the research on which many distinguished university careers have been founded. However, teaching should account for about 70% of an academic's time and a profession that seeks to ignore such a responsibility undermines its own integrity.

The protests and the reaction to them may more widely be regarded as stemming from the clash between the traditional provision offered by a higher education system that is a colonial artefact and the real, present needs of students in a democratic South Africa

Students want to feel included and to do well and not feel as if they are outsiders. Unless the system deals with these perceptions and how and why they are caused, things will not change. However, the view of decolonisation proposed by some student protesters and their academic allies, which tends to focus on narrowly defined changes to what is taught and affirmative action to enlarge and strengthen the black academic cohort, is less than the pedagogical and structural changes that need to be made to improve the system. A broader view of decolonisation, which would, for example, create greater complexity in the social sciences, genuinely address the issue of students learning in a medium that is not their mother tongue and transform how the sciences are taught, needs to be adopted.

Meanwhile, universities should continue to challenge students to step out of their comfort zones as part of the learning culture that they promote, which should, by definition, challenge many of their preconceptions. This kind of intellectual engagement, rather than #RhodesMustFall activism, which is a discourse common to student protesters in many countries, should be considered the priority. Actually, many students want jobs and to be part of the global community.

In this regard, academics, many of whom seem to have withdrawn from the field of contestation, have to adopt a greater leadership role, particularly in promoting the wholesale transformation of the post-school system that is required to support sustainable growth in South Africa.

There is a big difference between the discourse at historically advantaged institution and the material discussions at the historically disadvantaged institutions. However, there are values and principles to which all higher education institutions should cleave, particularly in the face of a lack of evident leadership among the students and their constantly shifting demands.

At UWC, which suffered an arson attack on the financial aid office where student debt records were kept, the university authority insisted that it was not financially feasible or politically acceptable to scrap student debts, outsourcing and public/private partnerships on campus. By contrast, UCT, which only has a relatively small accumulated debt of R60 million, agreed to scrap R111 million of student debts, although this failed to staunch the protests. However, UCT, unlike some of the historically disadvantaged universities which have faced repeated disruptive student protests over the years, lacked the experience and the tools to manage the crisis.

At UWC, the authorities have adopted an approach of listening carefully to student demands – not presuming that they already have the answers – but, at the same time, adopting a long-term view and refusing to accede to damaging short-term demands, which can betray a crude egalitarian mindset and have sometimes stemmed from the political and other ambitions of the Economic Freedom Fighters (EFF) and the Pan Africanist Student Movement of Azania (Pasma) on campus. If university leaders think there is a price that they can pay for peace, their institutions will end up in pieces.

Vice-chancellors, many of whom are former activists-turned-political operators, are cast in the role of spaza shop owners competing with each other for income. When riots erupt, they seek to protect their own wares, phoning the police and petitioning the government as required. In contrast, they should be exercising their academic authority in underscoring the core role of universities and taking a stand, in relation to the protests, that reflects underlying academic values.

Functions of higher education as a new transformation framework

Diversity is a horizontal discourse that is relatively easy to grasp, but differentiation is a vertical discourse which is more complex.¹³ When apartheid came to an end and democracy was introduced in South Africa in 1994, the emphasis was on redress – equity rather than development. However, economic growth has now become a priority, so greater emphasis should be placed on development. In this context, the terms of the discussion about the core functions of South African universities need to be realigned.

The South African tertiary system was historically shaped by former colonial power Britain as a top-heavy system dominated by elite universities. This was then overlaid by apartheid policies catering to the socio-economic needs of a ruling white-settler class and monopoly capitalism. After 1994, the focus on transformation driven by equity largely failed to address the underlying structural deficiencies and undergraduate inefficiencies of this elitist higher education system, which had been designed to service a factor-driven economy.

The South African economy is now a more productive, efficiency-driven one with ambitions to participate more fully in the global “knowledge economy”. In general, countries with higher rates of enrolment in higher education are more economically competitive. South Africa must establish a more differentiated secondary education system with higher participation at the tertiary, university level in order to become an innovation economy.

The 2011 National Development Plan (NDP)¹⁴ proposed a knowledge-driven economy. Finance Minister Pravin Gordhan described his 2016 budget as guided by the NDP. It prioritised education, employment creation and the building of a developmental state. However, President Jacob Zuma has prioritised a different economic direction – for example, as parliament sought to debate the adoption of the NDP, he chose to focus on resource extraction to China without any beneficiation. In addition, budgetary allocations fixed by the treasury in 1997 allow little latitude for manoeuvre in support of a more developmental state.

Within the broader society and economy, universities have four key functions: they produce values and enable social legitimation; they help to select dominant elites; they can train a highly skilled labour force; and they can produce useful scientific knowledge. Tensions exist within each of these functions which the universities are left to resolve. Individual universities implement these functions in different ways and with varying degrees of effectiveness, leading to an operational differentiation. However, such *de facto* differentiation is inherently unstable and cannot substitute for systematic differentiation prescribed at the national level and guided by the benefits that universities may confer in promoting a developmental state.

Universities play a crucial role in identifying national identity and dominant social values and can also provide a site where these are contested. They can help to legitimise the state or, conversely, undermine state formation. If universities are not part of the national project, they become part of the contestation over ideology and resources. Both conservative and radical ideologies are present within universities. The greater the extent to which the ideological hegemony of dominant elites is established, the more that conservative ideologies dominate and radicalism is confined to a minority of the student and academic bodies. In addition, if the socio-political rule of society relies on coercion instead of consensus, universities can become centres for challenging the political system, although some authoritarian regimes also co-opt certain student groups.

¹³ This section is based on the presentation, “Functions of Higher Education: A New Paradigm”, made by Nico Cloete and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016.

¹⁴ National Planning Commission, *National Development Plan* (Pretoria: government printer, 2011).

In South Africa, universities have not succeeded in creating a national identity and, as in many Latin American and other African countries, are instead contributing to social instability. In the Herana project in eight African countries,¹⁵ only Mauritius, which is the most successful African country in terms of equality and political stability, has succeeded in developing a broadly agreed Pact about the role of universities in national development.

Universities play a crucial role in both selecting and socialising elites. Massification of higher education has led to these elites being broadened from less than 10% of cohorts to more than half. However, although universities are often allocated the role of reducing inequality within society, this is generally not one that they are equipped to fulfil, although individual graduates earn much more than non-graduates. Only a small proportion of the exceptionally poor qualifies for, and completes, university studies.

In South Africa, 70% of the poor students who are eligible for NSFAS funding fail to complete their studies, indicating the inadequacy of universities as an effective mechanism for equity for this group. Differentiation in the higher education sector between elite and general public education universities, as well as a strengthened TVET sector, would help to increase the numbers of ladders out of poverty that are available and free South African universities to focus on other functions that are more properly within their purview.

There is a tension between providing the specific skills required by professionals within the economy and the broader education that produces fully engaged citizens and enables workers to think for themselves and adapt to, and change, working conditions (self-programmable labour). Universities that focus on training the labour force are most effective when they are close enough to the worlds of industry, business and the service sector to be economically useful, but not too close. Universities that become completely subordinate to the needs of the labour market are unable to perform their broader training functions properly. In South Africa, universities train people for the civil service, but not for the top posts in the private sector, which tends to recruit senior staff from outside the country.

Although the production of new knowledge should be a fundamental function of universities, this is often not the case, despite the considerable benefits generated by high-level research. For example, the construction and operation of the world's largest radio telescope – the Square Kilometre Array (SKA) – in South Africa has already brought benefits in green energy, low-cost housing materials and the training of black mathematicians and physicists. In general, new modes of economic production are increasingly dependent on knowledge and information technology. The capacity of universities to produce new knowledge that may be used within the broader society, rather than any “community service” function, constitutes the major contribution made by this sector to national development.

Only the top universities can fulfil all the four functions ascribed to them – legitimisation of social and government structure; the appropriate selection of dominant elites; the training of highly skilled workers; and the production of useful new knowledge. The other universities have to prioritise among these functions. An effective university system should combine the functions within and across institutions appropriately to maximise support for development, providing a judicious balance of public benefits and private returns.

In this regard, the government's role is to provide the bureaucratic and regulatory framework for such a system and to foster broad social well-being. Corrective and redistributive policies depend on the state. However, government agents often engage in the politics of redistribution, using state

¹⁵ Botswana, Ghana, Kenya, Mauritius, Mozambique, South Africa, Tanzania and Uganda.

mechanisms for political patronage and rent-seeking. Global intellectual, financial and political networks that support and directly benefit from technological and knowledge advances also tend to exclude the majority of people. States need to ensure the genuine accountability of their development efforts, in particular seeking to create meaningful links between informational and human development to increase productivity and well-being.

The National Planning Commission (NPC) promotes PhDs and research outputs – publication of work generally depends on a PhD – as the essential elements of new knowledge production. The commission is seeking to triple the number of doctoral graduates from 1,420 to 5,000 a year and make PhDs a necessary requirement for gaining an academic position (which has led to an over-emphasis on the importance of PhDs within the higher education system).

The NPC is promoting the establishment of international-standard centres for innovation in the higher education sector; a future scholars programme to service university staff requirements and increasing demand for professional PhDs in the non-university research, financial and services sectors; and the realignment of the national science councils within the university system.

However, such initiatives are largely being promoted in the absence of a developmental state, despite the government's rhetoric about its commitment to this, and in the absence of a broadly agreed Pact about the role of universities in national development. As such, they represent sound bites that create the right impression without having any genuine substantial material effect – policy as performance. It is sometimes argued that these attractive policies fail to be implemented due to a lack of capacity, when the real cause is a fundamental disagreement among the main actors on the policies themselves. Sometimes, poor capacity and disagreement combine to impede progress. In addition, the government has developed some ineffective, detrimental policies that it *has* implemented.

The ANC is perceived as having “restored dignity”, but rights without capabilities tend to lead to an appeal to victimhood. Zuma continually emphasises the wrongs endured under apartheid and how they continue to shape the experience of many people. Meanwhile, the government has failed to address the recurring problem that South Africa has a population with low skills and needs to employ more people. Instead, Blade Nzimande tinkers with government subsidies in response to the #FeesMustFall protests.

The changing labour market, scarce skills and student employment

The work on post-school education and training in DHET includes planning for the present and future skills required by the South African labour force.¹⁶ The aim is to establish a credible institutional mechanism, and enhance understanding of the signals for the quantity and quality of skills demanded by the economy, trade and investment, and inclusive development policies. The mechanism should enable stronger coordination among the relevant actors in response to the signals. Education alone is seen as a necessary condition for, but not driver of, economic growth.

In general, three kinds of approaches have been adopted towards skills planning and labour market intelligence systems. First, the market-based approach adopted by countries such as the US and Britain involves extensive collection of data on the supply of and demand for skills with the goal of identifying blockages in the labour market. Second, the employer- or social partner-based approach

¹⁶ This section is based on the presentation, “The changing labour market, scarce skills and student employment: critical signals, but a long way to transformation indicators?”, made by Glenda Kruss and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016. For more information on the issues covered by this presentation and to access the reports on which it is based, please see the Labour Market Intelligence Partnership website at www.lmip.ac.za.

adopted by some northern European countries places greater emphasis on understanding vacancies in the labour market and job seekers with the aim of determining how resources may best be allocated to tackle skills shortages. Third, the state intervention approach adopted by Taiwan and South Korea uses big data sets on supply and demand of skills with information on trade and investment strategies to align industrial and skills-development strategies. In general, South Africa is seeking to develop the datasets and methodologies that would enable it to adapt the last approach in a manner appropriate to its context. Such an approach should address the demand for inclusive development and the needs of the unemployed, youth not in education and training or work, and those in the informal sector.

Structural transformation of the economy, employment market and provision of appropriate skills sets is crucial to South Africa's development. According to targets set by the 2010 National Growth Plan,¹⁷ there will be a skills shortage of 1.2 million jobs (including 860,000 skilled workers, 333,000 unskilled workers and 13,000 highly skilled workers) by 2020. Meanwhile, about 8 million people are presently unemployed, of whom 5 million are youth, and the labour force is growing at twice the rate that jobs are being created. This indicates significant gaps in patterns of employment supply and demand.

In fact, the heavy industry sector which is central to government policy is not delivering. However, growth can be found in light manufacturing and capital-intensive industries that require high skills and there is increasing demand for low-paid workers with few skills. The present and arising economic and employment demands can be addressed by boosting outputs from the tertiary education sector. However, TVET colleges currently produce insignificant benefits in terms of economic growth and their role and functionality for future development requires attention.

There is a wide mismatch between the development trajectory of the economy and what the labour force needs to engage in inclusive work. South Africa is presently in a low-skills equilibrium trap. The government, which is concerned about the high and rising levels of unemployment, is seeking to identify and address structural shortages in the market, as well as individual skills gaps. Data on employability should be collected and made available to enable economic strategists to make longer-term predictions and plans. Factors such as technological disruption and new kinds of business must also be taken into account by planners.

Employment sectors in which there are overall shortages of highly skilled managers and skilled technicians and associate professionals have been identified and classified in terms of priority. In addition, mismatches between the graduate outputs of the higher education sector and employment opportunities have been identified. For example, only 17,000 teachers are trained each year although the demand is for 20,000.

Mismatches have also been identified between the specific skills that are taught and those that are required by the job market. Fifty percent of graduates are currently employed in the community and social services sector, 25% in the financial sector (including many engineering and technical graduates) but only 2% in manufacturing.

Direct remedial action by the government to address the mismatches between the skills on offer and those required by a developing economy can include granting visas to people with specific professional, technical and other capacities.

In the higher education sector, more data is required to identify capacities and shortfalls in institutional supply of graduates with certain qualifications and skills. National data on graduates needs to be disaggregated to identify the precise roles that higher education institutions can, and

¹⁷ Economic Development Department, *Framework of the New Economic Growth Path* (Pretoria: government printer, 2010).

should, play in meeting skills gaps, particularly how more black students with potential could be mentored and acquire decent employment.

To this end, national longitudinal graduate destination databases should be established. A pilot study at Rhodes and Fort Hare analysed the issue of graduate destination. It considered whether students graduated in their intended field of study, reasons for not completing intended courses, graduate employment and sectors of employment.

Unemployment rates and the factors linked to these differed considerably between the two universities – Fort Hare’s is considerably higher. Rhodes had a higher proportion of students who graduated in their intended field of study, although, in marked contrast to the motivations cited by students at Fort Hare, the main reason for not completing their intended course was lack of interest. Among employed graduates, former Rhodes students mostly work in the private sector while Fort Hare graduates are much more likely to be employed in the public sector. Rhodes students are much more likely to use their social networks to find employment.

In order to identify how the skills development systems are operating to produce the skills required, innovations systems – such as that generated by the SKA project – can be mapped by sector and region. Such mapping helps to identify who is excluded and who is at the core of skills development and innovation networks, and then why, to address gaps and blockages. Graduate-destination studies and innovation system-mapping offer tools for skills planning that can inform the strategic development of university and TVET mandates.

Notwithstanding the value of such informational initiatives, more effective skills-planning within the higher education sector is impeded by broad structural issues such as the legacies of apartheid geography and industrialisation. The demand side also faces obstacles in establishing appropriate educational programmes. For example, recent attempts to develop professional qualifications for health sciences specific to certain business requirements foundered in red tape.

Available data is a significant constraint on translating demand-side signals into strategic plans for post-school education and training. Current data allows only broad high-level signals on labour market trends and the qualifications pipeline. More fine-grained information is needed on graduate labour-market destinations at the institutional level and on skills needs at the company level. At present, the Protection of Personal Information Act impedes the acquisition of some of this important data. Adhering to international standards, the government should enable more open sharing of such data to enable better decision-making within the system.

Possible research and development indicators

Research and development indicators, like other indicators, must abide by the rules of scientific measurement. For example, they should compare like with like, allow for small sample sizes and normalise for field, subject or system differences, etc.¹⁸ An effective framework for monitoring research and development should measure investment in research; research capacity (human resources and collaborative networks); research outputs (publications, graduate outputs and innovation outputs); and research impacts (scientific and social impacts). The framework should also enable measurement at the appropriate level – in this case at the level of the institution, or university. Also indicators need to be normalised to be useful – so, for example, the total number of peer review journals produced by an institution could be normalised according to a head count of staff in order to be compared with the output of other institutions in the sector.

¹⁸ This section is based on the presentation, “Measuring research performance – R&D indicators”, made by Johann Mouton and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016.

In measuring, it is important to distinguish between indicators for relatively stable states – capturing some property at a specific point in time – and those that describe change – capturing a difference over a specific period of time. For example, the number of publications or doctorate outputs in 2014 constitutes a state indicator. The rate of increase in publication outputs constitutes a change indicator. Both state and change indicators may be used to describe the system in productive, if different, ways. For example, the amount of funding provided to universities can be presented through the lens of either state or change indicators.

A range of change indicators have been developed to refer to the university sector as a whole (comparing universities), others indicators refer to changes within the same university over time.

The indicator for research funding is based on the NRF grants awarded to universities between 2013 and 2015. In broad terms, this indicator can reveal the “capability” of a university to secure or attract research funding and may be seen as an indirect indicator of research activity and/or strength: strong universities will always be able to secure and leverage more research funds than weaker ones. In the interest of ensuring comparability of NRF grants to all universities, the indicator was limited to the grants awarded to certain funding categories (levelling the playing field as far as possible between the large, established universities and the rest). It was then normalised according to the number of permanent academic staff members.

The state indicator reveals average per capita funding for the past three years, with Stellenbosch coming out top with R198,000 a staff member, UCT with 149,000, Wits with R144,000, Rhodes with R134,000, UWC and Pretoria with R96,000 and, at the lowest end of the scale, R11,000 at Limpopo. These levels of research funding may be an indirect measure of the efficiency of the research office. In this regard, factoring in the success rate of applications would be revealing. Notwithstanding such normalisation, the factor difference between the most and least successful universities would persist.

The change indicator for this is the average annual growth rate in per capita research funding, showing which universities have constantly increased their NRF allocations. Pretoria tops and Fort Hare ranks fourth by this measure. The comprehensive universities show low, or in the cases of Venda, Mangosuthu and Zululand, negative growth against this indicator. However, in terms of absolute value, the universities are actually only cutting up a cake that is getting progressively smaller.

The state indicator for published research is individual universities’ share of research publications over the period 2005 to 2014, showing which has produced most over these 10 years. This table is headed by Pretoria and UKZN. However, the change indicator, which shows the difference in the share of research outputs in 2005–2007, compared with 2012–2014, tells a different story. North-West – largely due its Mafikeng campus– UKZN, Fort Hare and Venda have all increased their proportion of outputs. The technical colleges have doubled their share. However, Pretoria has lost a big chunk of its share. Another change indicator in this area, shows that the top five universities produced 65% of outputs between 2005 and 2007, but only 54% between 2012 and 2014. The findings may indicate that some smaller institutions are accruing benefits from offering greater financial incentives to their researchers to produce published outputs. The scale of outputs at UKZN, which receives relatively little NRF funding, may be attributed to the university’s other diverse funding sources.

The state indicator for weighted normalised knowledge outputs ranked Stellenbosch first in 2014, with each academic staff member producing an average of more than three published outputs each year. The figure for Pretoria in second place was 2.78 and so forth down the table to Mangosuthu, which produced only 0.08 – in other words, the average staff member at Mangosuthu publishes once every ten years. However, the fairness of such comparisons is questionable given the wide

variation in the individual universities' PQMs, with some institutions producing almost only undergraduates and few postgraduates. Nevertheless, interventions designed to change or affirm the roles of institutions within the higher education system in relation to research can take this indicator as a useful starting point.

The change indicator for this output is the variation in ranking, rather than the change in normalised output, between 2010 and 2014. In 2010, Unisa was below Free State in the table, but it subsequently improved and rose above it. Most universities have increased their outputs at a rate that outstrips staff growth, but in Unisa's case this could be at expense of learning efficiency.

To ascertain the shape of knowledge production, university outputs in internationally indexed journals was measured, with the change indicator looking at the shifts in output by journal index from 2006 to 2011. The indicators were used to measure UCT's and Unisa's outputs. In 2011, 90% of UCT's output was published in internationally recognised journals which shape the Singapore rankings – and much of these were from science research funded by DHET. By contrast, Unisa has no chance of entering the Shanghai rankings of top universities since much of its research is published in South Africa's 22 (internationally unaccredited) law periodicals and only about 18% was published in internationally recognised journals in 2011. Such publication patterns reflect institutional research and other policies, as well as the larger funding environment. They can also signal different approaches to academic standards. For example, in-house journals can be used to boost the number, although not necessarily the quality of outputs. In one case, an editor published 50 articles that he had penned in his own journal.

To measure the extent of collaboration in research, papers from UKZN in Web of Science journals were disaggregated by collaboration type, with the joint efforts of authors from the same institution at one end of the scale and the presence of foreigners, indicating international collaboration, at the other – although such measurement needs to account for visiting professors who may have a dual affiliation. Of the 13 854 UKZN papers published in Web of Science journals between 1990 and 2012, about a third involved some international collaboration, with a further 15% co-authored with scientists and scholars elsewhere in South Africa, and the remaining one third representing single-institution papers. The change indicator, which is the shift in the type of collaboration producing these papers from 1993 to 2012, shows a substantial increase in international collaboration.

Looking at a breakdown of publications by staff at Free State, the indicators show that while women aren't necessarily publishing as much as men, they are closing the gap. The contribution of female authors to the total research output at the university more than tripled between 1990, when they accounted for only 7% of authorship, and 2011, by which year the proportion had risen to 23%. In terms of the age of contributors, older people are now publishing more, according to indicators measuring this change between 1990 and 2011, particularly at Pretoria (compared with UCT) where the university has created avenues for more post-retired people to contribute research.

The implementation of a comprehensive monitoring and evaluation framework for university offerings can reveal existing strengths and future directions for valuable differentiation. Such a framework requires evaluative indicators based on high-quality data systems that are fit for purpose. Increasing collaboration between the Centre of Excellence in Scientometrics and Science, Technology and Innovation Policy (SciSTIP), DHET and NRF has developed the requisite high-quality data systems, although these need to be further refined and expanded. In addition, the different evaluation contexts and purposes for which indicators are required should be agreed so that they may be tested and developed accordingly. If the framework is to become part of a national project to measure transformation in university research and development capacities, consensus must be reached on its proper applications and which indicators it should include.

Student engagement indicators

The term “student engagement” can refer to the involvement of students in learning activities, curricula development, quality assurance processes and institutional governance.¹⁹ The object and degree of the engagement, which is generally a knowledge-centred activity fostering greater understanding among the parties, need to be clearly defined.

Engagement is often sold to students as “partnership”, when the process is really one of consultation that cannot transform the object of engagement. This can lead to expectations being dashed and a breakdown in communication that sidelines student leaders and results in increased activism.

The South African #MustFall student protests received substantial media attention and created some panic. After the protest movement stopped fee increases for 2016, the editor of the *South African Journal of Science*, John Butler-Adam, raised the spectre of the demise of quality education in South Africa due to underfunding.

Former Rhodes University vice-chancellor Saleem Badat has placed the movement within the context of a crisis of legitimacy. The protests helped to conceptualise the higher education sector as facing an increasing economic, ideological and political crisis. Jonathan Jansen, the vice-chancellor of Free State, has emphasised the need to adopt a differentiated view of the crisis, arguing that the historically white Afrikaans universities, the historically white English ones and the historically black institutions faced different issues and activism.

The protest movement has also been characterised as pedagogical, involving collective conscientisation seeking to address what is perceived as an underlying malaise of outdated colonial, “white” epistemology that shapes university structures, curricula and culture. The universities were criticised for failing to understand and offer redress for “black pain” and the suffering of working class, female and LGBTQ students.

The form of the protests had an aesthetic aspect – the renaming of buildings, performance art, documentaries and social media. They were also sometimes violent, although students either focussed on the violence of the police and security guards sent to control them or sought to redefine the term “violence” as a broader non-physical, social phenomenon – for example, the “violence” of low university pass rates. Many of the students’ activities – including setting fire to artworks – and declarations offended the sensibilities of many members of the middle-class, who, with the university authorities, blamed the protests on “bad” students rather than the alienation they experience at universities.

The #MustFall movement was also seen as introducing a new form and era of political activism in contrast to violent, service-delivery protests and often brutal police responses to these that have formed a backdrop to South African democracy since 1994. The students replaced the (incendiary) match with the cell phone, creating South Africa’s first social media-networked and -publicised movement, occupying both cyber and public spaces.

The protestors also had an impact at the intersection between university and public life, asking larger questions about problems around social and political formation facing South African society in general. In this regard, the #MustFall movement, which proclaimed itself leaderless and non-partisan and seemed to cross racial, cultural and class barriers, may be regarded as an experimental process in democratisation.

¹⁹ This section is based on the presentation, “Student engagements, the #MustFall movements, and citizenship competencies”, made by Thierry Luescher and subsequent discussion on this at the “Differentiation Dialogue: Indicators for Development”, Cape Town, 21-23 August 2016.

The nature and impact of the movement remains contested. It has been criticised for serving specific party-political purposes, failing to represent the majority of students and refusing to negotiate meaningfully on its multifarious demands, many of which were regarded as conferring few benefits on society as a whole. In addition, the students' nostalgic representation of their own movement has been criticised for inhibiting a more responsible engagement with other higher education actors.

The protests raise important questions about which student voices are and aren't heard on campus and the nature of the larger "good" that may be derived from the form and content of such student action.

Furthermore, useful indicators may be derived for student engagement activities in general enabling a better understanding of the various ways in which African universities offer a training ground for democratic citizenship – which is one of the objects of the Herana project launched by CHET.

A number of high impact practices and background conditions in four main categories have been identified as potentially beneficial to citizenship education. These include the ethos and institutional culture on campus (in terms of freedom of expression on campus; and respect for difference); the nature of academic engagement (in terms of active learning; collaborative learning; staff-student interaction; and enriching learning experiences); engagement in student affairs (in terms of participation in civic, leadership and diversity skills training; political activism on campus; leadership in student governance; active participation and leadership in political student organisations; and active participation and leadership in advocacy and developmentally-oriented student societies); and discursive engagement (in terms of meaningful conversations with diverse others; interest in and discussion of public affairs; and media use).

Although Herana surveys conducted from 2012 to 2014 did not directly measure student involvement in such practices or the extent of their engagement in particular institutional cultures on campus, it is possible to extrapolate the likelihood of particular forms of student activity fostering certain citizenship competencies.

The pilot studies conducted at UCT and Makerere University in Uganda indicated which kinds of student engagement may have the greatest bearing on citizenship competencies such as critical thinking; self-awareness; leadership skills; civic, diversity and social skills; social responsibility; appreciation of social and ethnic/global diversity; understanding international perspectives; and attitudes towards/support for democracy.

It is noteworthy that both universities refused to engage on the findings of the studies and that UCT, similarly, suppressed the results of its staff satisfaction society – although a more open discussion of such issues may offer governance benefits to university administrators.

At least one variable in each of the four clusters for student engagement could well have a potential impact on citizenship competencies. Variables relating to civic skills training, student politics and relevant student societies at both UCT and Makerere were found to have a probable bearing on critical thinking, leadership, diversity and social skills. At UCT, engagement in student politics was found to have a likely bearing on the dependent variable for good citizenship. The indicators for discursive engagement – interest in and discussing politics, and meaningful conversations with diverse others – also had a potentially significant impact on critical thinking, leadership, diversity and social skills, as well as the dependent variable for good citizenship at UCT. The findings also indicated that pedagogies of active and collaborative learning promise a reasonable chance of impacting on citizenship competencies and that all student engagement activities should take place within a supportive institutional climate characterised by high levels of tolerance and respect for diversity to increase their potential effect.

Taken together, the student engagement variables act as reliable predictors providing a solid explanation of citizenship competencies, in particular combined civic, diversity and social skills. At UCT, the variables can predict up to 31% of the variance in these skills, and 25% of the variance in attitudes towards good citizenship.

The significant predictors for civic, diversity and social skills are the number of years a student has spent at university; an institutional culture that supports diversity; staff-student interactions; participation in civic skills training; and interest in, and discussion of, politics. In addition, active membership or leadership of a student advocacy group can point to greater diversity and social skills.

At UCT, the best predictors for attitudes towards good citizenship are students' perceptions of the extent of "freedom of expression" on campus; frequent meaningful conversations with diverse others; and high levels of interest in, and discussion of, politics and public affairs on campus.

These student-engagement indicators may usefully be analysed in relation to the 2015-2016 student protests at South African universities and their capacity to predict the activism may be assessed. This would require in-depth analysis of the data and employment of a wider range of the indicators surveyed in the UCT and Makerere studies.

Annexures

Programme

DAY ONE

09h00 Welcome and general comments

Nico Cloete, Director, Centre for Higher Education Transformation

09h15 The academic core: performance and change indicators

Ian Bunting, Project Coordinator, Centre Higher Education Trust

10h45 Tea

11h00 Categories of financial health indicators

Mark Bunting, Associate Professor of Accounting, Rhodes University

12h00 Differentiated fees

Nico Cloete, Director, Centre for Higher Education Transformation

Charles Sheppard, Director, Management Information, Nelson Mandela Metropolitan University

13h00 Lunch

14h00 The challenge of linking data-driven targets to a differentiation strategy: A UCT work-in-progress

Marilet Sienaert, Executive Director Research, University of Cape Town

15h00 Differentiation discourses in the forthcoming National Plan

Diane Parker, Deputy Director General, Universities, Department of Higher Education and Training

Comments

Nasima Badsha, Chief Executive Officer, Cape Higher Education Consortium

Trish Gibbon, Director, Planning, University of Johannesburg

16h30 Break

19h00 Dinner

20h30 The loss of confidence of South African higher education?

Jenni Case, Professor, Department of Chemical Engineering, University of Cape Town

Ian Scott, Emeritus Professor, Higher Education Development, University of Cape Town

Molapo Qhobela, Chief Executive Officer, National Research Foundation

DAY TWO

08h30 Functions of higher education as a new transformation network

Nico Cloete, Director, Centre for Higher Education Transformation

09h30 The changing labour market, scarce skills and student employment

Glenda Kruss, Director, Education and Skills Development, Human Sciences Research Council

10h30 Tea

10h45 Possible R&D indicators

Johann Mouton, Director, Centre of Excellence and Centre for Research on Science and Technology, University of Stellenbosch

11h15 Student engagement indicators

Thierry Luescher, Senior Researcher/Assistant Director: Institutional Research, Free State University

12h00 Summing up

John Butler-Adam, Editor-in-Chief, The South African Journal of Science, University of Pretoria

Mark Paterson, Rapporteur, Cape Town

12h45 Close of seminar

Nico Cloete, Director, Centre for Higher Education Transformation

Participants

Thomas Auf der Heyde	Deputy Director-General: Research Development and Support, Department of Science and Technology
Nasima Badsha	Chief Executive Officer, Cape Higher Education Consortium
Ahmed Bawa	Chief Executive Officer, Universities South Africa
David Bleazard	Director, Institutional Planning, Cape Peninsula University of Technology
Ian Bunting	Project Coordinator, Centre Higher Education Trust
Mark Bunting	Associate Professor of Accounting, Rhodes University
John Butler-Adam	Editor-in-Chief, <i>The South African Journal of Science</i> , University of Pretoria
Jenni Case	Professor, Department of Chemical Engineering, University of Cape Town
Nico Cloete	Director, Centre for Higher Education Transformation
Andre du Toit	Emeritus Professor, Political Studies, University of Cape Town
Samuel Fongwa	Post-Doctoral Fellow, Centre for Research on Higher Education and Development, Free State University
Trish Gibbon	Director, Planning, University of Johannesburg
Alison Gillwald	Executive Director, Research ICT Africa
Glenda Kruss	Director, Education and Skills Development, Human Sciences Research Council
Patricio Langa	Professor, Faculty of Education, University of the Western Cape; Adviser to the Rector, Eduardo University
Thierry Luescher	Senior Researcher/Assistant Director: Institutional Research, Free State University
Phethiwe Matutu	Chief Director, Department of Science and Technology
Julian May	Director, Institute for Social Development, University of the Western Cape
Johann Mouton	Director, Centre of Excellence and Centre for Research on Science and Technology, University of Stellenbosch
Joy Papier	Director, FETI, University of the Western Cape Institute of Post-school Education

Diane Parker	Deputy Director General, Universities, Department of Higher Education and Training
Mark Paterson	Rapporteur, Cape Town
Larry Pokpas	Director, Planning, University of the Western Cape
Molabo Qhobela	Chief Executive Officer, National Research Foundation
Ian Scott	Emeritus Professor, Higher Education Development, University of Cape Town
Charles Sheppard	Director, Management Information, Nelson Mandela Metropolitan University
Marilet Sienaert	Executive Director Research, University of Cape Town
Rolf Stumpf	Retired Vice-Chancellor, Nelson Mandela Metropolitan University
Francois van Schalkwyk	Project Coordinator, Centre for Higher Education Trust