FOCUS

MAKING SA WORK:
Universalising Competence

Why Human Capital Matters Daniel de Kadt

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Challenges in Science and Technology Innovation
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REVIEW FORUM

Francis Antonie is the Director of the Helen Suzman Foundation. He is a graduate of Wits, Leicester and Exeter Universities. He was awarded the Helen Suzman Chevening Fellowship by the UK Foreign Office in 1994. From 1996 to 2006 he was senior economist at Standard Bank; thereafter he was director of the Graduate School of Public Development and Management at Wits University. He is the founding managing director of Strauss & Co.

This edition of Focus has as its theme the idea of 'universalising competence'. The objective is to make South Africa work, and to make it work better, be this in the public sector – and we are all aware of the need to enhance delivery, or the private sector which needs to be the engine that drives job-growth.

We take our lead in this edition from Daniel de Kadt's challenging exposition of why human capital matters. de Kadt goes beyond the usual rhetoric of the importance of human capital and contextualises it politically and socially. All who are interested in South Africa's developmental trajectory should spend time reflecting on his observations and conclusion.

Graeme Bloch re-considers basic education, and the unfinished business which we face with basic or fundamental education. John Bradley and Jackie Scheiber dig deeply into the problems surrounding maths and science education. Their conclusions are sobering. But they point out that the problems are not insuperable. On the contrary, they are very manageable. We can only hope that policy makers will seriously consider their arguments. Philip Booth and Kate McNally offer an international comparative dimension to private schooling for the poor, and they further suggest that these initiatives are important for continued economic development. Kate Francis draws inspiration from social entrepreneurship in education.

John Pampallis, Roger Deacon, Manfred Dutschke and Kirti Menon review the higher education landscape and the varied initiatives which are being undertaken. These overviews and reflections bring into focus the historical legacies and challenges which confront higher education. This is a turbulent landscape, not least because of the great expectations which have been raised and which are not easily met.

Elizabeth de Kadt offers us an empirical account of developments at one South African university where transformation in the broadest and most useful sense is underway.

Malegapuru Makgoba reviews science and technological innovation within the context of the National System of Innovation and what the challenges are that the South African science community and, indeed, the broader society face currently, and in the future.

Catherine Odora Hoppers concludes our first edition devoted to making South Africa work with reflections on human capital development in the challenge of post-apartheid societal reconstruction.

We are pleased to include in our book review section reviews by Anthony Egan and David Everatt of Michael Cardo's biography of Peter Brown, the former Chairman of the Liberal Party. The book is a Helen Suzman Foundation project, part of an ongoing initiative to demonstrate the importance and influence of liberalism in South Africa. We conclude with reviews by John Luiz and Stan Kahn.

Why Human Capital Matters

South Africa faces three social crises. The first, HIV/AIDS, and the second, violent crime, represent well worn trenches in the consciousness of the nation. The third is the public educational deficit, a crisis that is only now gaining much needed public attention (as evidenced by this edition of Focus). In this paper I demonstrate the political importance of a capable human capital substrate, and briefly assess some 'macro features' of South African education. I look specifically at inequality, as well as the relationship between primary/secondary education and tertiary education, and offer some suggestions for avenues of future research into the state of South African education.

Daniel de Kadt is a research intern at the Helen Suzman Foundation. He graduated from UKZN with a BA Cum Laude in Economics and Linguistics, and a BA (Hons) Summa Cum Laude in Linguistics. He is currently pursuing an MPhil in Political Science at the University of Oxford. His research interests include political economy, modernisation, educational public policy, and formal and quantitative methodology.

I contend that education matters, not merely because of its social and economic effects, but also because of its political effects. As a result, the South African government's systematic failure to produce a substrate of well educated human capital may have significant consequences for the political (and hence economic and social) future of this country.

Education matters

Much academic literature points to the fact that education matters at both macro- and micro-levels. At macro-levels, the quality of human capital has demonstrable effects on national economic growth rates[1]. Augmented Solow growth models illustrate why productive, reliable, and efficient labour should produce higher levels of GDP per capita. Similarly, new growth theory stresses the importance of knowledge and innovation, both which can be considered associated outputs of human capital investment. Equally important is the idea that increases in labour skill should lead to the gradual redistribution of income – better quality labour can demand higher wages, and greater GDP per capita makes employers more likely to redistribute (the result being an 'emerging middle class'). At micro-levels the quality of human capital has an effect on individuals' prospects. Better educated individuals are likely to receive higher labour market returns, and probably more work place satisfaction. Moreover, education can be seen as a 'social good' that allows people to achieve greater self actualisation. The moral of the story is simple but fundamentally important: If you want a country to grow, and if you want its people to grow, invest in education.

A new and rapidly expanding literature suggests that this picture of national and human development misses an important 'piece of the puzzle' – the political aspect. Cross-sectional and longitudinal research suggests that education is a good predictor of democratic stability and political liberalism. That is, holding a range of explanatory variables constant, an increase in educational outputs increases the likelihood of democratisation in non-democracies, and decreases the likelihood of democratic breakdown in established democracies[2]. There is also some suggestion that investment in human capital may be a crucial conduit which explains the remarkable correlation between certain economic and political features[3].

Assuming this evidence does illustrate that education tends to enhance the likelihood and longevity of democracy, we might ask why? A common answer is that education 'awakens the mind', increasing social aspirations, expectations, and ambitions, which in turn increases public pressure on government. This would be visible in the growth of a 'civil society'. Better educated people demand more of their government, increasing

levels of public demand for good, accountable and efficient governance (and its associated benefits). But if this simple explanation is really true, how do we account for cases such as Singapore, Russia and China? Here we find highly organised and efficient educational institutions, impressive literacy levels and science and mathematics outputs, but persistent non-democratic political arrangements. Moreover, how does this hypothesis fit with the findings of Mattes & Mughogho[4], who suggest that higher levels of education among individuals in Africa are not correlated with higher levels of belief in 'democratic values'?

If democracies are to remain stable, the state must be able to make credible commitments towards its people, that is, it makes promises on which it cannot renege. Failing to do so means that citizens will forever be aware of the fact that the state can take back what it has given, and will be unlikely to settle, perpetuating conflict.

Political transitions and political behaviour

The above empirical puzzle demands a more rigorous treatment. I provide two potential explanations here. To understand how regimes change and consolidate, it is crucial to develop a basic model of political systems. The key components are the state as an entity, the population (be they citizens or subjects), and the institutional rules that define their relation to one another. One such model is developed by Acemoglu & Robinson in their groundbreaking 2006 book[5]. They argue that key to political transitions (and thus also to political consolidation) is the notion of 'credible commitment' by governments. If a population is discontented, it has three possible routes of action. First, they may utilise institutional mechanisms (the court system or, at the limit, elections). Second, they may utilise extra-institutional mechanisms (civil disobedience or, at the limit, revolution). Third, the people may simply do nothing. In South Africa we see all three strategies being pursued by different groups, at different times, on different issues. The state's preference is clearly to pacify discontented citizens, either through concessions (changing its behaviour or policies) or force (making options one and two not viable). If democracies are to remain stable, the state must be able to make credible commitments towards its people, that is, it makes promises on which it cannot renege. Failing to do so means that citizens will forever be aware of the fact that the state can take back what it has given, and will be unlikely to settle, perpetuating conflict. One way of ensuring credible commitment is to design an institutional system that checks the state's ability to renege on promises made. This institutional arrangement, what we call 'constitutional democracy', is best understood as a way of 'institutionalising uncertainty'[6].

Democracies, however, are also susceptible to failure. The South African case at present illustrates this – the democratically elected government is effectively reneging on promises of service delivery and greater equality (whether that is for political or bureaucratic reasons is irrelevant), and citizens are beginning to use both institutional and extra-institutional mechanisms to exert public pressure on the state. Over and above this, many South Africans have chosen to leave the country, invariably taking valuable capital (human, cultural and financial) with them. The South African government seems systematically incapable of making credible commitments, outside of the commitment to the maintenance of constitutional authority (and even the credibility of this commitment now seems suspect). Part of this may be due to parliamentary design, and part of it due to the 'dominant-party' nature of the state. While it may seem that increased public anger about failures to fulfil commitments could create governmental change in South Africa, a more worrying prospect is that it actually creates the conditions for state failure. There is no guarantee that a move away from the present-form ANC will signal the entrenchment of constitutional democracy, rather than a very real threat to state stability.

So where does education fit in? Perhaps it is the transfer of education to the population that can act, for the South African government, as a credible commitment. Education is a non-retrievable investment for the state. Once skills have been transferred to the citizenry they cannot be reclaimed by the state. This seems a plausible explanation for the non-democratic state stability seen in modern Russia, China and Singapore, where advanced, widely available education may indeed act as a way of placating public pressure on the state system. But in South Africa, already a constitutional democracy, a commitment to education also brings about associated commitments from the state; to economic growth, to democratic governance, and, in the end, to competitive democracy.

This final claim, that competitive democracy might be the end result of the development of a strong human capital substrate, can be clarified by referring to work on political irrationality. Bryan Caplan argues that while some voters successfully vote in their own best interests, most tend to make systematic errors with regard to what public policy options actually best achieve their goals[7]. He argues that voters' preferences over beliefs, not just outcomes, imply that they vote in line with broader 'belief systems' they wish to maintain. These belief systems represent heuristic simplifications of political and economic realities, often defying known facts about economic performance; but people gain utility simply by reaffirming their belief systems[8]. As voting ignorantly (without making an informed decision about which policies best serve your interests) is a costless exercise (no one voter is capable of affecting the result of an election), people tend to choose, rationally, to vote irrationally. Caplan's insight is ingenious: while many people may vote well (in terms of outcomes of public policy), the large majority of people vote poorly, and so democracies often produce sub-optimal policies. It is distinctly possible that education plays a significant role in determining what percentage of the population continues to assert belief structures that are incongruous with real world facts. Indeed, Caplan finds that education has a significant impact on the ability of voters to make good decisions about economic policy, mirroring the findings of Delli Carpini & Keeter[9]. Thus, while education may not make citizens any more 'democratic', it may well make them more capable of entrenching democracy by pursuing their self interest accurately, and breaking ANC hegemony.

It is distinctly possible that education plays a significant role in determining what percentage of the population continues to assert belief structures that are incongruous with real world facts.

South Africa: Primary and secondary schooling

It is well known that South Africa spends an impressive percentage of its annual GDP on education. At the same time, the outputs being produced by the primary and secondary systems are deeply worrying. Not only are drop-out rates high (with around 50 per cent of students dropping out between grades 10 and 12), but the quality of output is worrying in comparison to international standards. The South African system has, in some ways, been designed to incentivise a fairly high percentage of students to drop out of high school before matriculation. While this may serve a broader purpose (driving students into more technical 'further education'), in many cases it simply prevents students from gaining state provided education. This limits the capacity of the state to provide a credible commitment in terms of human capital investment.

The quality of South African school students is, however, probably the most worrying feature of the primary and secondary education system. Not only does it speak to the broad failures of the government in regards the generation of quality human capital, but it also speaks to the deeper structural problems in the education system. Low

quality educational outputs are not simply caused by poor curricula or poor teachers, but also by structural and familial problems. A lack of state supervision of teacher performance, parent-less households, and families in which parents are illiterate and innumerate are some of the deeper social problems contributing to the state of South African education. And the quality of education is deeply worrying. In both the 2001 Trends in International Mathematics and Science Study (TIMMS) and the 2006 Progress in International Reading Literacy Study (PIRLS), South Africa was placed last of all participating countries. The national average was dramatically lower than every other participating country, including, in different studies, Chile, the Philippines, Iran, and a range of other African states. Most worrying of all, the South African data reported a large standard deviation, suggesting an abnormally large range of quality in the answers received. It is not difficult to assume that this quality variation is associated with the profound structural inequalities in the education system, both at the top end but also at the bottom[10].

The deficits in schooling in South Africa should worry us not just for their human and economic effects, but for their broader political implications. Drop-out rates, low quality output, and systemic inequality along racial (and wealth) lines show a distinct failure by the South African government to invest in people.

Unfortunately the South African Department of Education declined to participate in the following rounds of TIMMS and PIRLS testing (no doubt because of the public embarrassment caused by the shocking results). This means that a valuable opportunity for comparison over time has been lost. It appears that South African schools may well, however, participate in upcoming TIMMS and PIRLS studies. Moreover, data gained from the South African Annual National Assessment, a new testing programme being run nationwide for school leavers, will soon provide a clearer cross-temporal insight into the quality of South African education. Once more data become available it will be interesting to see the effect of Outcomes Based Education, and the numerous curriculum changes that have accompanied its introduction (and impending demise).

One thing that is clear, however, is that access to high quality education in South Africa is still determined by race. A brief examination of 2010 Department of Basic Education data on school enrolments by race and quintile (effectively 'school wealth bracket') shows that in Gauteng, the Free State, and the Western Cape, white learners outnumber non-white learners in schools that fall into the richest quintiles. In the other provinces the racial make-up in the richest quintiles remains far from a 'natural demographic spread', with most white students attending wealthier schools (or at least schools in wealthier areas), and most black students attending the poorest schools (or schools in the poorest areas). A 2006 Human Sciences Research Council project demonstrated a fairly linear improvement in pass rates in the five wealth quintiles, moving from poorest to wealthiest – schools in richer quintiles tend to have higher Matric pass rates[11]. This set of facts, combined with the structural deficits left behind by Bantu education, implies that inequality remains a pressing concern in South African schooling.

The deficits in schooling in South Africa should worry us not just for their human and economic effects, but for their broader political implications. Drop-out rates, low quality output, and systemic inequality along racial (and wealth) lines show a distinct failure by the South African government to invest in people. As outlined previously, this failure may have implications for state stability and the prospects for competitive democracy.

South Africa: Universities

South Africa has 23 universities, a result of the restructuring of the tertiary sector in 2004 and 2005. Along with these universities, the South African tertiary education sector includes a number of other post secondary institutions, but our focus here is on universities. The Centre for Higher Education Transformation groups South Africa's 23 universities into three different clusters, depending on their function. Broadly, the clusters break down as follows. The red cluster represents those universities that are high quality research-intensive universities. The green cluster represents middle quality research and teaching focused universities. The blue cluster represents lower quality teaching-intensive institutions. These clusters provide a useful heuristic tool for analysis of the inputs and outputs of the South African university sector. By decomposing the sector into its three constituent clusters, we are able to examine, in more detail, the reality of the university sector.

Figure 1 illustrates two points in this regard. First, it illustrates that the growth in the university sector over the 2000s has been primarily down to increased enrolments in the blue cluster, with both red cluster and green cluster enrolments staying fairly constant over time. This suggests that while the university sector may be becoming more inclusive, that inclusivity is being driven by increased enrolment in non-research intensive, lower quality institutions (but more on this later). The second point is that there is a substantial gap between enrolments (total headcount at a university) and yearly graduations. While this is expected, the size of the gap varies by institution type. Red cluster institutions show an average gap of just over 50% between enrolments and graduations (that is, around 50% of total enrolments graduate in any given year). The green cluster exhibits a similar throughput rate. Strikingly, the blue cluster exhibits a larger gap, with around 35% graduating every year. This is probably down to the fact that blue cluster institutions often use distance learning which can slow through-put. Broadly, however, we see that most increased inclusivity in the University sector is accounted for by slower-through-put institutions.
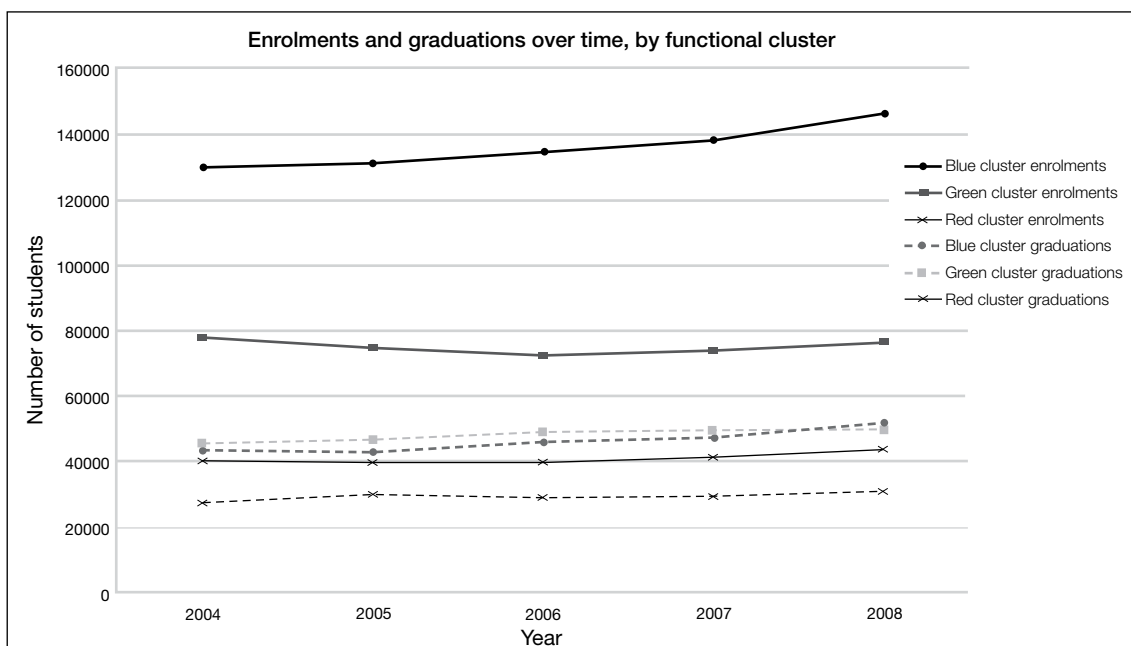

Figure 1: Enrolment and graduation numbers at South African universities, by functional cluster, over time (based on Department of Education data).

Figure 1 does not, however, include the latest enrolment and graduation levels (this data is not yet available from the Department of Education). Over the next few years we should anticipate a significant increase in the number of enrolments in universities, as the number of Matric exemptions seems to have increased with the introduction of Outcomes Based Education. Data provided by the University of KwaZulu-Natal bears this out, with the number of first time entering students increasing dramatically in 2009 and 2010, over previous years (with the exception of 2004, the year in which the UKZN merger took place).

Universities may have to choose between entrenching elitism and inequality (maintaining standards but also systematising inequality) and egalitarianism that lowers the quality of their output. And inequality is clearly a significant issue in the present tertiary establishment…

Once this data becomes available for the entire university sector, and once we have a better sense of the trajectory of the quality of outputs of the primary and secondary sector, a picture should emerge about the place and role of universities. It seems likely that, if the primary and secondary sector fails to improve the quality of students over the next few years, but produces more that are eligible for university entrance, the university sector will be required to pursue one of three paths. First, they may raise their admissions standards, attempting to close out weaker students (a policy that is currently under discussion for some programmes at the University of Stellenbosch). Secondly, they may seek to introduce a 'four year bachelors', a degree that acts to compensate students for the shortcomings of their primary and secondary education. Thirdly, they may seek to simply 'lower standards', attempting to keep through-put rates at levels similar to their current level. The first and last options seem worryingly attractive, especially if we consider the demonstrated inequality in South African primary and secondary education. Unequal education systems are particularly difficult for universities to deal with, because they provide students of vastly variable quality. Universities may have to choose between entrenching elitism and inequality (maintaining standards but also systematising inequality) and egalitarianism that lowers the quality of their output. And inequality is clearly a significant issue in the present tertiary establishment, as evidenced by Figure 2.
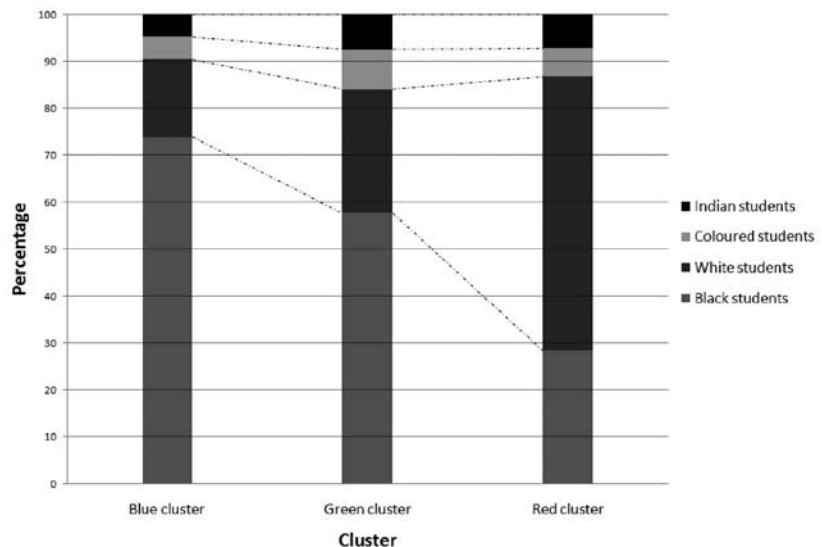
Percent race group enrolments, by cluster

Figure 2: Percent race group enrolments, by cluster, for 2007 (based on Department of Education data).

Figure 2 breaks down each university cluster by race (for the year 2007). The blue cluster is almost demographically representative, but the green and red clusters are far from it. The red cluster is dominated by white students, representing 60% of the student body. This seems distinctly similar to the demographic breakdown of the schooling quintiles, outlined earlier. There are two facts that should be highlighted here, however. The first is the distinct clustering of black students in the blue cluster universities – their numbers dwindle (both relatively and absolutely) as universities get 'better'. The second, however, is the dramatic shift in the percentage of white students as we move from the green cluster to the red cluster. Not only do white students dominate the red cluster institutions, the majority of them are in these institutions.

Where to from here?

There are three primary 'take-home' messages here. The first is that new macro patterns in South African education appear to be emerging, but that these patterns will need to be studied once more (and better) data become available. The second is that those patterns appear to be potentially pernicious. A drop in quality of schooling, combined with an increase in matriculation exemptions and university intake, poses a difficult set of problems for the South African tertiary education sector. Moreover, poor levels of schooling and the cyclical reinforcement of inequalities in educational inputs and outputs make the prospect of a movement toward quality education for the majority of South Africans unlikely. Unless the South African government rapidly addresses problems with teacher incentives (perhaps bringing back school inspections and challenging the Unions), curriculum design, and a range of other public policy issues, these problems seem likely to remain. The final message is that the educational deficit in South Africa is not merely a social and economic worry (though it most certainly is both of these), but may also have deeply troubling political consequences. If the South African government cannot meaningfully transfer non-reclaimable goods to the South African people, there remains a political incentive to challenge the legitimacy of the state. Similarly, if South Africans are not endowed with the tools required to challenge the incumbent government (rather than the state) by moving from ideological to more accurately self-interested voting, political competitiveness seems unlikely. In sum, a failure to suitably equip South Africans with an education may result in a sustained fragility of the South African state, as well as a failure to finally progress to a competitive democracy.

NOTES

1 See, for instance: Barro, Robert. (1991). Economic growth in a cross-section of countries. The Quarterly Journal of Economics, 106 (2), pp. 407 – 443; Castello, Amparo & Rafael Domenech. (2000). Human capital inequality and economic growth: Some new evidence. Unpublished manuscript; Castello-Climent, Amparo. (2008). On the distribution of education and democracy. Journal of Development Economics, 87, pp. 179 – 190.

2 Barro, Robert. (1999). Determinants of democracy. The Journal of Political Economy, 107 (6), pp. s158 –s183; Benavot, Aaron. (1996). Democracy and political democratization: Cross-national and longitudinal findings. Comparative Education Review, 40 (4), pp. 377 – 403.

3 There is a strong cross-national correlation between democracy, high levels of GDP per capita, and measures of national education. Explaining this correlation using educational institutions as a mechanism is the current focus of my research.

4 Mattes, Robert & Dangalira Mughogho. (2010). The limited impacts of formal education on democratic citizenship in Africa. Paper prepared for HERANA.

5 Acemoglu, Daron & James Robinson. (2006). The Economic Origins of Dictatorship and Democracy. Cambridge: Cambridge University Press.

6 Przeworski, Adam. (1986). Capitalism and Social Democracy. Cambridge: Cambridge University Press.

7 Caplan, Bryan. (2007). The Myth of the Rational Voter. New Jersey: Princeton University Press.

8 Note, Caplan is concerned with economic knowledge, but asserts that in other fields his arguments may hold equally well.

9 Delli Carpini, Michael & Scott Keeter. (1996).What Americans Know About Politics, and Why it Matters .New Haven: Yale University Press.

10 Fedderke, Johannes, de Kadt, Raphael & John Luiz. (2000). Uneducating South Africa: The failure to address the 1910 – 1993 legacy. International Review of Education, 46 (3-4), pp. 257 – 281.

11 Bhorat, Haroon & Ravi Kanbur (eds). 2006. Poverty and Policy in Post-Apartheid South Africa. Cape Town: HSRC Press.

Basic Education:
Where are we going?

Graeme Bloch was a DBSA education policy analyst. He taught in the education faculty at the University of Western Cape, and was project manager for youth development at the Joint Education Trust. He has worked as head of Social Development in the Department of Welfare, and as Director of Social Development in the Joburg Metro. He latest book is *'The Toxic Mix: What is wrong with South Africa's schools and how to fix it'* (Tafelberg, Cape Town, 2009)

The recent teachers' strike highlighted a whole range of 'morbid symptoms':

- The anger of teachers' unions at not having their demands met;
- Public concern over the teachers' actions in a year where schooling was already 'disrupted' by the World Cup. (While World Cup holidays were extended and potentially destabilising, others argue the benefits of youthful participation in a national high point and demonstration of unified delivery);
- Threats of violence against non-striking teachers and even threats against learners;
- The indifference of teachers to 'make-up programmes' for learners.

All this compounds the question of whether we are getting out of the education morass, or whether we remain doomed to fail generation after generation of young people, who only want opportunities and a space to develop their talents?

South Africa has a range of problems in its education system. The poor quality of the system reproduces racial and class inequalities in society and makes it difficult for South Africa to deliver on internal infrastructure promises or to achieve competitive levels in a cut-throat globalised world. As a result there are dangerous implications for long-term development and stability in the country.

The past year has seen enormous interest and effort put into education in South Africa. Since the African National Conference (ANC) Polokwane resolutions on education, calling for education to be 'national priority number one' and the concern of the entire society, there has been public debate, government statements and new official action. This has ranged from the appointment of two new ministers to head two reconstituted education departments (Higher Education and Training: Blade Nzimande, and Basic Education: Angie Motshekga) to summits called on Higher Education, Further Education and Training (FET), teacher and skills development, and on the role of principals.

The recent period has seen the following broad trends:
- There has been the reconstitution of national and provincial education departments. The draft sector plan of the Department of Basic Education (DBE) – Vision 2025 – sets initial targets for improved matric pass rates and better maths and numeracy results based on testing at grade 3, 6 and 9. Further, the Minister has recently announced the scaling back of paperwork for teachers; an emphasis on workbooks and foundational basics rather than the complexities of OBE (Outcomes Based Education); Grade 3, 6 and 9 public tests at a national level; and the implementation of an 'inspectorate' through NEEDU (National Education Evaluations and Development Unit). These reflect priorities in the Development Bank South Africa (DBSA) Education Roadmap and government's interaction in a multi-stakeholder process.

■ There has been growing public concern around education reflected in consistent media coverage and debates on issues such as the role of teacher unions, OBE and poor outcomes, all of which have been heightened by the teacher strike. Marches by 10 000 young people for libraries under the Equal Education banner and the NATU (National Teachers Union) indaba in 2009 with religious leaders, chiefs, mayors, principals, teachers and learners in KwaZulu-Natal, and the October 2010 all-in conference in North West, all show direct involvement by organised elements in civil society and Community Based Organisations willing to make a difference. A range of clustered, community-based interventions from Hantam/Colesburg, to Bitou/Plettenburg Bay, to Hermanus, Soweto and elsewhere, and a host of active Non-Governmental Organisations (NGOs) and (business) funders point to a rich resource of experience and assets available for education renewal.

Questions are clearly on the agenda regarding appropriate change models and best practice, about clustering, multi-stakeholder alliances and the link between 'citizen' initiatives from below and official response and policy from above. Issues include how to change teaching practices and the behaviours of officials. Partnerships and focused non-bureaucratic responses to teacher support require new management skills and training.

> *School is not just about knowledge and skills, but also about values, attitudes and creative and emotional development, all of which contribute to "responsible, active and productive citizenship".*

Quality education as a central goal of South Africa's development strategy reflects the assumed relationship between education and the ending of inequality. Education is closely linked to outcomes such as health or jobs, all of which impact on poverty.

Education and Society: *What is Education For?*

The most obvious reason for the importance of education, and the most stressed, is the link to employment. Education provides the skills and competencies that will allow individuals to perform productive roles within the economy and society. Education helps individuals achieve their own economic, social and cultural goals. It helps society "to be better protected, better served by its leaders and more equitable."[1] School is not just about knowledge and skills, but also about values, attitudes and creative and emotional development, all of which contribute to "responsible, active and productive citizenship"[2]. The focus in much education literature has also moved beyond educational expansion ('Education for All') and a narrow stress on inputs, to a much more rights-based concern with quality education. This guides and informs educational content and processes and more general social aims.

United Nations Educational, Scientific and Cultural Organisation (UNESCO) emphasises three core principles underlying quality – the need for relevance, for greater equity and access of outcome, and for observance of individual rights. Poverty, rural status and gender have been shown to be three determinants of lack of access and poor educational outcomes, combined with poor instruction. Education is embedded in society and is subject to pressures and influences from a variety of sources. The relationships required to sustain the education project are extremely complex. Many of the pressures appear from outside of the strictly educational terrain yet have fundamental impacts – from globalisation, to unemployment and economic growth, to cultures and attitudes, and whether learners arrive at school hungry. Many of these are rooted in the history of a country and cannot be shaken off or changed overnight. Furthermore, interventions in education are difficult and multi-faceted. Straightforward relations between conditions of education and its outcomes are not easy to determine. Single interventions have a

range of influences and unintended consequences. Interventions need to be carefully contextualised and situationally relevant, integrating and aligning with other social processes to achieve their objectives. As UNESCO argues:

"Schools are definitely not factories producing outputs according to recipe in a technically deterministic way. Crucial to their effectiveness is the education process itself, in which teachers and pupils use the available inputs and interact with each other in creative ways. …"[3].

Achievements include the amalgamation of apartheid education systems and Bantustan establishments into a single national Department responsible for broad policy, and provincial establishments responsible for delivery. The SA Schools Act of 1996 laid the foundation for a non-racial approach to education.

Education gains in the South African Transition

The growth of global knowledge-based economies underlines the need for strategies to develop high-level skills which are competitive on the global stage. At the same time the effects of globalisation often marginalise and degrade lower-level skills and occupations as economic sectors collapse under the competitive pressures of low-wage economies such as China.

The effects of these processes are uneven and varied. The changed global context, overlaid on the inflexibility and inefficiencies of apartheid education, created difficulties for any transition and the emergence of equitable, sustainable and developmental education options.

There have been significant achievements in the first sixteen years of democracy in turning around apartheid education and its gross inequalities. Not least was ensuring compulsory primary education: the Millennium Development Goals (MDGs) for education have already been achieved in South Africa, as universal primary education and gender balances in schools go beyond the requirements set to be achieved by 2015. Achievements include the amalgamation of apartheid education systems and Bantustan establishments into a single national Department responsible for broad policy, and

provincial establishments responsible for delivery. The SA Schools Act of 1996 laid the foundation for a non-racial approach to education. There were improvements made in equalising expenditure across the racial divides and in reducing provincial inequalities, as well as in dealing with issues such as size of classes, access to teachers and course materials through the new Norms and Standards which emphasised pro-poor expenditure. A raft of policy papers, reports, legislation, implementation directives and institutional development resulted in progress being made across many branches of education, from higher to vocational.

Other important achievements since 1994 include:
- Access to primary and secondary schooling improved to near universal enrolment. The participation rate among girls is also amongst the highest in the world.
- Numbers of pupils who have progressed to higher levels of schooling have increased significantly from 1994.
- Poor learners and those who cannot afford them are exempted from paying school fees.
- The Matriculation pass rate increased from 58% in 1994 to 65% in 2007, but has been falling in recent years.
- Pupil-to-teacher ratios have improved from 43:1 in 1996 to 32:1 in 2006.[4]

What these figures show is that despite massive challenges of transformation, there is clearly a positive continuity and logistical capability in the schooling and wider education systems. There are important levels of stabilisation and delivery, and there is a large baody of students who are managing to attain high levels of achievement.

Slippages and Weaknesses in SA Education: Causes of Poor Education

These gains unfortunately need to be offset against significant challenges which become more important in the context of searing global competitive demands and a local context of deep inequalities and poverty traps. The education context, sixteen years after apartheid, can be described as one of crisis.[5]

While there were significant improvements and achievements in the first sixteen years of democracy, it remained clear that there were inadequate outcomes in terms of standard scores for literacy, mathematics and science, where South Africa routinely came close to last, even amongst less-developed and resourced African countries. Skills scarcities and dependencies have roots in an inadequate baseline of achievement within the

schooling system from very early grade levels. Poor outcomes impacted far more heavily on poor, rural and township – predominantly black – schools. While a small portion of schools achieved success, 60-80% of the schools remained dysfunctional. Gangsterism, ill-discipline, hunger and AIDS impacted negatively on the social functioning of schools. Teacher issues, for a variety of reasons, resulted in a largely dispirited, demoralised, under-performing and angry teacher corps, and again this impacted particularly on the poorer schools, leading some commentators to talk of 'two school systems'.

These concerns – publicly acknowledged by education authorities – found expression, amongst other places, in education resolutions at the ANC conference in Polokwane. This important conference defined a far more grassroots-based and mobilisational approach by the ruling party. There was a call to focus attention on the impacts of poverty on education and to address access issues for the poor including nutrition schemes and the increase of the ratio of non-fee paying schools from 40% to 60%. In addition, there was a call to 'restore teaching to the noble profession' it had once been. In return for this commitment by society, teachers were to reciprocate by being 'in-class, on-time, teaching.' Education must go beyond being a concern of the education department and become the concern of government as a whole. The ANC subcommittee on education was charged to give impetus to these endeavours and to develop a plan that could inform its key election platform dynamics in the field of education. Some of these efforts resulted in the formulation of the DBSA-coordinated Education Roadmap.

In failing to achieve quality delivery, the education system is working only for that section of the population who are able to access relevant institutions. Lack of quality education dooms the majority of people to marginalisation and exclusion from those schools, universities and colleges which could provide them with access to a better life.

If there is one phrase that summarises the failings of the education system, it is 'poor quality'. In failing to achieve quality delivery, the education system is working only for that section of the population who are able to access relevant institutions. Lack of quality education dooms the majority of people to marginalisation and exclusion from those schools, universities and colleges which could provide them with access to a better life. Education tends to reinforce the social and economic marginalisation of the poor in South Africa and reinforces their survivalist position, with few prospects for personal development and social mobility.

Drivers of Poor Education

Socio-economic status

A factor which hinders educational advancement is social disadvantage. The level of parent education and socio-economic status are strong predictors of educational outcomes, limiting inter-generational social mobility.

Teachers

Teachers are not accurately assessing learners and the subject knowledge of teachers is poor. Learners have no mechanism for benchmarking themselves and are thus unable to improve their results. Parents receive inadequate feedback and systems to support teacher assessment, e.g. common assessment instruments are sorely needed. Teacher knowledge has been called into question as the quality of teaching is central to the crisis in education. The problem of subject knowledge is an even more serious issue than under-qualification. It has been surmised that some teachers may be encouraging pupils to take lower-level, easier to teach, subjects. Effective development of competent teachers is therefore critical.

In addition to the problem of quality teaching, the quantity of teachers also emerges as presenting challenges. Poor remuneration accounts for some of the loss. It is difficult to retain teachers in the profession, particularly the better quality ones, and salaries are generally not commensurate with the responsibilities they bear.

Although the Department of Education is beginning to focus on performance and evaluation, there are obstacles to overcome. The negative experience of inspection in African schools during apartheid remains a recent memory, while in the post-1994 era, teacher appraisal has effectively been absent.

Dysfunctional schools

These trends have resulted in the exodus of middle-and working-class people from dysfunctional schools and many poorer parents living in the townships opt to send their children to schools in the suburbs.

"OBE" in schools without capacity

Criticism of Outcomes Based Education (OBE) in schools has resulted in a revision. OBE requires teachers to have considerable subject knowledge and skills and for schools to have a degree of resources. The problem is exacerbated by most pupils not being taught in their home language, making learning much more difficult for them. The Review of National Policies for Education: South Africa6 notes that '[National Curriculum Statement (NCS) is] a fine vision, but in the reality of the average South African school, it does not hold true' and that 'In early grades, less is more.'

Financial resources

Looking at funding, real spending on education reduced between 1996 and 2002, after which a real 18% increase in 2007 occurred. While spending on education in South Africa is 5% of GDP, this is below the UNESCO benchmark of 6%. There are considerable inefficiencies in textbook procurement, feeding schemes and scholar transport and the proportion of provincial budgets spent on education has fallen.

Many schools suffer an infrastructure backlog. National Education Infrastructure Management System (NEIMS) indicates that:

- 42% of schools are overcrowded
- 3,152 are without water
- 1,532 are without toilets
- 4,297 are without electricity
- 79% are without libraries

- 68% are without computers
- 60% are without laboratories

NEIMS estimates that R153bn of capital expenditure is required to overcome this backlog and a further R30bn is required for maintenance compared to the R18bn budgeted over the next three years.

Learners at the poorest 40% of schools in the country are currently exempt from paying fees – these are termed 'no fee schools'. On a provincial basis, the no fee schools range from 56% in the poor Eastern Cape to 14% in the richer Western Cape. A new policy decision has been taken to increase the no-fee schools from the poorest 40% to 60%. It is noted that schools that are prohibited from charging fees must receive adequate compensation from government, and in good time, otherwise they will go into decline.

Responsibilities and Accountabilities

There is insufficient alignment between the national and provincial levels of the Department of Education. National government has exclusive legislative responsibility for tertiary education and concurrent responsibility with the provinces for all other levels of education. National government, working with provinces, formulates national policy. Provincial governments must however implement nationally determined policy, and the provinces are not obliged to observe national priorities, particularly regarding allocation of financial resources.[7]

Two systems: Inequality Summarised

While former white Model-C schools produce uniformly better results, black rural and township schools overwhelmingly survive through the efforts of good and committed teachers. Over half of the intake that start school never reach the end, with Grade 9 being a major point of drop out. It is not only resources and physical infrastructure that are important, but how the education process is ordered, managed and translated into classroom practice. Only a small number of black students acquire an education of any meaningful quality, and there is a wide gap between the top quintile of learners and the rest. Poor schools effectively play a warehousing function or have become 'sinkholes', with some notable exceptions. In short, black rural and poor township schools effectively form a second system of education, trapping participants behind massive blocks.

Test scores at various levels are consistently administered, as are drop out and cohort rates, and are widely accepted as giving the best indication of proxy outcomes of the

schooling system. These poor outcomes are one of the key signals of poor quality education.

Comparative scores for maths, numeracy and literacy in South Africa are consistently among the worst in the world : Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), Trends in International Mathematics and Science Study (TIMMS), Progress in International Reading Literacy Study (PIRLS), and other official tests all show South Africa's poor performance relative to other Southern African countries. While skills at the top end may be cutting-edge, there is not the broad base to ensure adequate responsiveness to the changing pressures of globalisation and the knowledge economy. Recent national tests showed that whilst some 65% of 6th-grade learners in model C schools in the Western Cape performed at 6th grade level, this figure was only 3% in ex-DEC schools and an appalling 0,1% in ex-DET schools[8]. Numbers of matriculants are no greater than in 1994, with similarly poor higher grade maths and university-exemption passes. Soudien estimates that only 52 of every 100 pupils who begin grade 1 make it to grade 12.[9]

Taylor shows that 79% of high schools fall into the poorly performing category, producing 15% of the higher grade passes in mathematics, whilst 66% of passes are produced by only 7% of the schools. As he says: 'Hundreds of thousands of our children leave our schools every year without the foundation skills needed to benefit from further education or to secure anything but the most menial jobs. More disturbing is that dysfunctional schools are unable to socialize young people into the attitudes of mind required for citizenship in a democracy… school leavers are easy prey to a life of crime, poverty, corruption and inefficiency'[10].

Hundreds of thousands of our children leave our schools every year without the foundation skills needed to benefit from further education or to secure anything but the most menial jobs.

Van der Berg argues that '[t]he school system is not yet capable of systematically enabling learners to overcome inherited socio-economic disadvantage, and poor schools least so.'[11] He adds:

> 'The degree to which South African students are disadvantaged on account of their background is exacerbated by marked inequality in outcomes between schools. This large shift in outcomes between the most affluent schools and the rest reflects the fact that a major part of the educational performance disparity in South Africa is between rich (mainly historically white and Indian schools), on the one hand, and the 80 percent of other schools.'[12]

These systemic problems are compounded by high levels of unemployment, in particular amongst the youth.

Looking Forward

In looking to address the negative drivers of education, and to set specific achievable targets over phases towards the goals of 2025, it is useful to note and align them with targeting processes already underway in government such as targets set in the *Monitoring and Evaluation Commission in the Presidency*, as well as analyses in the department of *Basic Education's sector plan for 2025, Vision 2025* (see Government gazette 33434 2 August 2010). Also, generic levels of intervention identified in the Education Roadmap should be kept in mind, as interventions would have to operate at all three levels simultaneously. These levels are:

■ In-class – what happens in the classroom itself, specifically how teachers 'come to the

party' and ensure that quality learning takes place;

■ Support to school – this addresses pedagogical, administrative and social support provided by principals and departmental officials to ensure schools are able to function and that teachers can get on with their job of teaching and learners to learn;

■ Lastly, the societal level – this includes backlogs in facilities, the impacts of poverty such as hunger, poor sight and health, transport needs, HIV/AIDS, the problem of school-based gangs and so on, as well as parents' difficulties in providing support and the need for a broad social compact around education as a national priority.

While money is clearly an issue, especially in addressing physical backlogs and needs, the core issues are around the functioning and efficiency of the system, its procedures, monitoring and delivery processes.

What is crucial in government's suggested long term plans is less the detail than precisely that there is visioning and planning, that key targets are set, and that priority areas for intervention are identified. The precise detail will vary as national dialogue is encouraged.

Key intervention areas would include:

■ Institutional fixes: especially to ensure functioning districts where concrete pedagogical and administrative support can be addressed by government and officials, as well as constructive and tailored approaches to monitoring and evaluation;

■ Training and support, especially management skills of principals, stakeholder partnering by officials, and various forms of pre- and in-service support to teachers;

■ Clearly, NGOs and civil society play a key role in mobilising skills and support and pressuring for effective delivery;

■ Lastly, social mobilisation and effective political leadership are required.

Conclusions:

A comprehensive approach to education policy will have to be devised. Plans and priorities for the short and medium term need to be developed, and a clear national consensus developed among stakeholders. This should be based on Government's own priorities, as well as a situational and contextual analysis of education realities, achievements and failings. The overall need is to develop a strong and principle-driven commitment to increased involvement in the education arena. This will also have to explore range of non-school interventions that need to be coordinated and drawn together to impact on schooling.

There will be short-term priorities (e.g. health screening) as well as longer-term interventions. The recent Education Roadmap, as well as current initiatives in regional and national government levels, together with increased public commitment to education improvement, can increase the prospects for an improved education system. With coherent plans and setting of priorities, positive factors can be translated into real improvements in education outcomes. There is no magic bullet, and while some education outcomes may be improved quickly, consistent improvements will necessarily take time. It is also unclear what the impact of the 2009 strike will be, whether teachers will feel embittered, how relations will be repaired, and what pupils' response will be. Education improvement can secure the future of South Africa's human capabilities and resources, adding to its range of skills and productivity and to the health, empowerment and participation of citizens in building a strong democracy, which can potentially be grown across the region and continent.

NOTES
1   UNESCO, 2004: 224
2   UNESCO, 2004:226
3   UNESCO, 2004: 228
4   from DBSA, 2009
5   see Bloch, G: 2009
6   OECD, 2008
7   DBSA, 2009
8   Soudien, 2005
9   Soudien, 2005: 60
10 Taylor, N, 2006
11 2005: 62
12 2005: 67

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Universalising Maths and Science Competence

The topic of maths and science education is one that almost everyone has an opinion on. This is true in developed and developing countries alike. There can be no better or simpler indicator of its universal importance. A widely-shared opinion is that it is unsatisfactory and something needs to be done about it. In South Africa there would certainly be a majority of this opinion. When we discuss our problems with maths and science education, therefore, we know that we are not alone; everywhere there is the same anxiety although the contexts may be greatly different.

As the authors of this article we need to explain how we fit into this picture. Maths and science education is practiced by teachers and experienced by learners. Provincial and national governments assume responsibility for the educational infrastructure and planning, spending a substantial percentage of budget on this in general, and on the maths and science components in particular. Teacher training is primarily a university responsibility and this is conducted both at undergraduate and postgraduate levels. Publishers of school books compete for the substantial market which, in principle, is available. School equipment suppliers similarly compete for a slice of this cake (an important and potentially expensive bite from which goes with school science). Potential employers are also active players, first and foremost because they need to recruit new employees with the kind of knowledge and skills that should be the outcomes of appropriate maths and science education. Science centres play a role in this because they aim to stimulate interest in maths and science through imaginative activities and events that can spark a life-long commitment. And finally, parents share in this concern for employment and will go to great lengths to enable their children to succeed, especially in maths and science education.

All this is common around the world, and as noted, it is everywhere deemed to be problematic. And because it is so problematic, we have yet other interested parties. We have the analysts, researchers and statisticians preparing reports; we have the NGOs in the field supporting teachers and providing extra help for learners; we have the exams-oriented programmes, some with low objectives of cramming and some with higher objectives of understanding and competence. And we have

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government policy responses with their capacity to wreck or to improve maths and science education. New curricula and new demands may have their justification but they place a substantial burden on the capacity of the system. Consequently, as is found around the world, what is intended often is not achieved.

…a university has something to contribute to society beyond the formal, traditional commitment… This conviction is now recognised as the "third pillar" of university activity, namely community engagement. In the field of maths and science education, the case for such engagement is clear: it is identified as a national crisis!

We hail from a self-funding unit of Wits University and our mission is to improve the quality, accessibility and relevance of maths and science education[1]. We do this by working primarily on two things: teacher development and teaching and learning resource development. We have been active in these endeavours for 20 years and learnt a great deal about this vexed maths and science education. We have experiences based upon working in support of teachers in many different settings; sometimes it is formal and sometimes it is nonformal. We also have experience in developing teaching and learning resources, work that is of course strongly influenced by working with teachers. This resource development work has given us considerable exposure to other countries in Africa where similar needs arise.

Our involvement in maths and science education in the ways mentioned above, reflects a conviction that a university has something to contribute to society beyond the formal, traditional commitment to tertiary-level qualifications and research. This conviction is now recognised as the "third pillar" of university activity, namely community engagement[2]. In the field of maths and science education, the case for such engagement is clear: it is identified as a national crisis!

In this article we aim to shed light on this crisis on the basis of our 20 years of experience. Rather like Anthea Cereseto[3] in a previous article for *Focus*, we speak from a basis of personal engagement with current realities. Whatever may be the case for studying the history or making plans for Utopia, the current reality is the sinking ships (a metaphor cited by Cereseto). Universalising competence must appear to many of those on board, like the band playing on the Titanic.

The Centrality of the Teacher

Cereseto reminds us of the centrality of the teacher and cites the conclusions from the McKinsey Report[4] on the world's best-performing school systems:

- the quality of an education system cannot exceed the quality of teachers,
- the only way to improve outcomes is to improve instruction; and
- achieving universally high outcomes is only possible by putting in place mechanisms that ensure that schools deliver high-quality instruction to every child.

Our activities in the maths and science education sector of the school system, have been very much in tune with these conclusions. And so when we discuss maths and science education in South Africa in the context of universalising competence, we have an opportunity to illuminate them and heighten awareness of their implications.

Teacher Training and Provision of Teaching & Learning Resources

Teachers qualify for the job by completing "pre-service" post-secondary education and training. Today this is available only through HEIs (higher education institutions, or more loosely, universities). But previously the principal route to qualification was through a teacher training college, of which there were more than 100 around the

country. At such colleges, three years of study led to a Secondary (or Primary) Teachers Diploma, endorsed for selected school subjects. The majority of teachers today hold such qualifications and are considered to be qualified to teach the relevant subjects in terms of regulations.

Twenty years ago there was already a problem for maths and science teaching in that relatively few candidates for these subject specialisations came forward. This in turn was due to these subjects being perceived as difficult to pass in matric and hence relatively few completed maths and physical science at grade 12 (standard 10). So the teacher training colleges would recruit actively for such students, offering bursaries and persuading even those who failed the subjects at school, to enroll for training as maths or physical science teachers. Whilst training of good quality teachers might have been their goal, in maths and science, the training colleges often had little hope of achieving it from this kind of intake. Whether they liked it or not (and some would say the training colleges had no higher objectives than training with a school textbook), within three years it is not realistic to prepare competent teachers of maths or science from such a starting point. Teachers qualifying from such an environment may recognise their limitations, and learn to live with them by clinging to school textbooks they are comfortable with, avoiding opportunities for too many questions from learners, missing out sections of the syllabus that are not examined, never doing practical work in science, etc. Their learners follow this regime with varying degrees of collusion; they see confirmation that maths and science are difficult and incomprehensible, and adopt the obvious route to matric salvation – namely cram for the exams, spot questions, and rote learn.

Of course this characterisation is a generalisation, and there always was a minority of sound students who have no need for avoidance actions. And also there was always a minority of teachers coming forward from universities with usually considerably better backgrounds from both their own school experience and the university experience. This we can readily accept. We can acknowledge that even here there is room for improvement, but such improvement can happen from a basis that may be satisfactory for life-long learning.

For those lucky enough to have had satisfactory educational opportunities, it might be difficult to understand how shortcomings in one's knowledge and understanding of a subject you teach cannot be overcome

very easily. But that is the reality. The situation reminds one of the university bridging programmes established in past years to enable educationally-disadvantaged students to succeed in their university studies. The effort and time required of both the students and their tutors/lecturers is enormous, and even then the results have frequently been disappointing. This is not an argument for doing nothing or for accepting that such students are stupid or unteachable. Not at all. It is an argument that calls for recognition of the depth of the problem for educationally-disadvantaged teachers in our schools.

There are very real challenges in learning and teaching maths and physical science. A central difficulty is the abstract nature of much of their concepts. The growth of one's thinking from concrete experiences and tasks towards generalisations, modeling, analysis and synthesis needs guidance from those who have gone before. For learners the guide is the teacher, who may or may not be personally well-equipped for the task. Here of course is a specific shortcoming likely to be found amongst training college diplomats. But even for teachers with a satisfactory background the routes to meaningful learning for their learners are not easy to discover. Teaching and learning resources are needed to facilitate this. There is abundant evidence that simply listening or watching passively is unsuccessful. There must be learner activities that encourage thinking and discussion and gradually open the door to abstraction. Science learning needs its practical work, where consciously or unconsciously you re-live experiences of scientific enquiry of centuries ago. And mathematics learning needs its manipulatives and its calculators to enable learners to develop and verify the abstract concepts. Unfortunately most schools are not suitably equipped for such activities. And when government officials or a donor delivers teaching and learning resources, all too often they have been chosen for the wrong reasons, are not suited to the real needs, and in any case there is no training for the teacher as user!

In-service Teacher Training

The weakness of the knowledge and skills of most teachers of maths and science has been well-known for many years. Programmes to address this problem are classed as in-service training of teachers. These programmes have been initiated mostly either by government or by NGOs. These had varied objectives, ranging from developing more progressive teaching styles and better conceptual understanding to drilling and practice in the core syllabus content. With the change of regime one would have expected these activities to be intensified.

However, the introduction of the National Curriculum Statement progressively over the past few years, has diffused the very necessary attention to needs for improved understanding and teaching methodology. The transmission of the new dogma occupied a great deal of time and often seemed to assume the teachers were well-grounded and just needed to get on top of the Outcomes Based Education philosophy and any new content the curriculum had.

Not surprisingly this has frustrated some teachers, who are aware of their real needs. Compounding the problem has been the limited capacity of subject advisers to help. These are key individuals in the district offices who should be in a position to support teachers who may be struggling to improve. Unfortunately these subject advisers usually have too many schools to support and too many other bureaucratic duties to perform. In addition, in many cases, they themselves lack the knowledge and skills which teachers need help with.

With these limitations of the government system itself, the potential role of NGOs and HEIs is amplified. NGOs, often funded by local companies, have filled the gap with varied initiatives. The quality and effectiveness has been very variable. Learning how to be effective has, however, slowly taken place. For example, short, isolated interventions are generally now seen as ineffective. But many funders (including government) still budget for minimum cost interventions, which in many cases leads to low quality and wasted effort.

In contrast to these non-formal programmes, HEIs have primarily offered the formal Advanced Certificate in Education programmes. These are 2-year part-time qualifications providing either for re-skilling or for up-skilling; re-skilling means learning to teach a subject you were not previously qualified for, whilst up-skilling means improving your knowledge and skills in a subject you are already qualified to teach. Once again these are of variable quality, with some HEIs enrolling large numbers of teachers and operating their courses with high teacher to lecturer ratios to maximise the ratio of income to expenditure. Also, too many maths and science teachers actually enroll for ACE programmes that are directed to subjects other than maths and science. For these and other reasons government is planning to terminate these qualifications.

… the fact remains that the majority of maths and science educators need substantial help to increase their competence, and they need it now. Of all the different ways of universalising competence this must be a priority.

Towards Competent Teachers

We want competent teachers so that learners can learn effectively. With such an outcome learners will be better able to contribute to society and be gainfully employed. We have painted a depressing picture of how we see the typical teacher today. But what of the new teachers who have qualified under the new dispensation through an HEI, and should be better prepared on average than their predecessors now in the school system? Probably they are better prepared and that is good, but the numbers coming into the profession are not increasing, especially in the maths and science areas of specialisation. This means that the newer teachers are facing a steadily increasing challenge, which of course is discouraging to matriculants considering their future careers. It is therefore very clear that the competence of the existing maths and science teachers needs priority attention. Government recognises this in principle, as evidenced by the recent Teacher Professional Development Strategy 2010-2014 document and Gauteng Mathematics, Science & Technology Education Improvement Strategy 2009-2014 document published by the GDE.

All manner of ameliorating programmes are proposed, to support the four strategic thrusts of the GDE Five Year Strategic Plan 2009-2014:

- to ensure that Gauteng has effective schools and learning institutions,
- to ensure that GDE head office and district offices provide relevant, coordinated and effective support,
- to enable young people to make the transition from school to further education and or work that provides further training opportunities,
- to strengthen GDE's partnerships with all stakeholders, resulting in education becoming a societal priority.

One has to say that these are all very fine, but one is not optimistic.

In our view, the central problem is not being prioritised. It is true that ameliorating programmes have their place; it is true that pre-service training of teachers could be improved. But the fact remains that the majority of maths and science educators need substantial help to increase their competence, and they need it now. Of all the different ways of universalising competence this must be a priority.

Towards Competent Subject Advisers

We have noted that these individuals are employees of provincial departments with the position and potential to make an impact. However, they are handicapped by lack of resources, poor direction, too much administration, and lack of subject competence. They should be recognised as one of the keys to achieving teacher competence, and enabled to fill this role. Money invested in this has the potential for bigger returns than ameliorating programmes. Of course some Subject Advisers intrinsically do not have the potential, and they should be redeployed to administrative posts, where their experience may have value. The Subject Advisers we seek will have both the classroom experience and the subject knowledge that will make them the advisers the teachers are seeking. To improve the chances that they will achieve this status, they need development programmes specifically designed for the purpose. We have experience of this kind of programme with Limpopo Department of Education, where Wits Short Courses leading to a Certificate of Competence have been implemented, and we know that despite the limitations of the circumstances there, something meaningful could be achieved.

As Subject Advisers gain in competence, so they increasingly deserve to be provided with resources. They need to be mobile, equipped with laptop computers and the skills to use them, and provided with a small library of reference books, teaching aids and equipment. Their visits to schools should be frequent and supportive, so that their visits are welcome. More Subject Advisers need to be appointed, as in many cases they have far too many schools and teachers to provide for adequately. They need to arrange workshops for teachers and develop local communities of practice. Above all they need to lead by example, demonstrating a love of both the subject and the learners.

They do not need new buildings, more layers of managers and bureaucrats, or more distractions.

Unfortunately, the evidence is that the job of streamlining the science was done in haste by a group who lacked the depth and breadth of knowledge required to undertake revision of national curricula. What we do not want at this stage is a curriculum revision that leads to a fragmented and poorly-structured version of what is currently in use.

The new, Strengthened, Integrated Plan for Teacher Development (2010)

From the Department of Higher Education and Training there has recently appeared a final draft plan with the above title. The plan expresses the seriousness with which the Department views the current educational situation. Of course, it is not restricted to the needs of maths and science education but these certainly feature strongly in the plan. The plan is impressive in its scope and its internal logic. Planners will nod appreciatively at the more than 50 pages of exposition in text and diagrams sprinkled with some 50 acronyms, several of which are quite new. Readers from a previous era who used to be teaching in the days of Transvaal province, might be forgiven for a momentary flashback when the acronym TED appears, but this now represents something else – namely Teacher Education and Development. The timescales encompassed by this plan are big, with some developments being listed as far ahead as 2027.

Much as one may admire the planners work, one may still be unenthusiastic. The needs of the nearer future seem likely to be lost in this vast, futuristic canvas. Reflecting on the current realities one just cannot see where all the

human resources required by the plan will come from. All those personnel who will run the Provincial Teacher Development Institutes (PTDIs), the National Institute for Curriculum and Professional Development (NICPD) and District Teacher Development Centres (DTDCs), represent a potentially threatening number of skilled and knowledgeable people who could be teaching in the schools. To be sure, in a stronger educational scene these institutions could be very appropriate. But with the ship sinking we need more urgently to focus on plugging the gaps, pumping like mad and going full steam ahead for a safe port, rather than on establishing a maritime transport network.

Curriculum and Assessment Policy Statements (2010)

In recent months the existing National Curriculum Statements introduced together with the Outcomes-Based Education philosophy in 2005, have been revisited with a view to simplifying the original documents and the subsequent supporting documents (Subject and Learning Area Statements, Learning Programme Guidelines and Subject Assessment Guidelines) for all subjects. The aim was to produce National Curriculum and Assessment Policy Statements as a "refined and repackaged" version of the original documents, and not to create new curricula.

The drafting teams have now completed their work and it is available for public comment on the Departmental websites www education.gov.za and www.thutong.doe. gov.za. The refining and repackaging of both the GET and FET mathematics has resulted in minor modifications. The refining and repackaging of both the GET and FET science, however, has not resulted in greater clarity or simplification and, furthermore, the end result is greatly

changed curricula at both the GET and the FET levels.

Unfortunately, the evidence is that the job of streamlining the science was done in haste by a group who lacked the depth and breadth of knowledge required to undertake revision of national curricula. What we do not want at this stage is a curriculum revision that leads to a fragmented and poorly-structured version of what is currently in use. What we do want is probably some cut-back in the more difficult aspects plus a lot more detailed guidance for teachers. Teachers who have worked hard to get on top of the existing curricula and mastered new subject matter and pedagogy will be very angry. Teachers who have not managed to do this yet, will receive confirmation that they can just go on as they always did, avoiding new content and ideas, and sticking to their chalk-and-talk.

Conclusions: Universalising Competence

Based upon 20 years of working in the school maths and science education field, our conviction remains that the teacher is the key. This conviction is echoed in the above-mentioned Integrated Plan for Teacher Development: "The Plan places teachers (including school leaders and subject advisors) firmly at the centre of all efforts to improve teacher development…". We differ, however, in that we are averse to structures and more structures. Teachers may be at the centre in the Plan but they are in danger of being buried in the foundations of structures which are empty of suitably skilled people. We favour, rather, a model in which teachers are at the centre of a human web of subject advisers. Whilst the quantity and quality of existing subject advisers admittedly need improvement, this seems an ambition that can be achieved in a relatively short space of time and without the invention of a lot of new acronyms.

NOTES
1 www.radmaste.org.za
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Private Schools for the Poor and Economic Development

'Education for all' is enshrined in the Universal Declaration of Human Rights. It is also often regarded as the magic bullet that will promote economic and social development as well as political stability. Talking about his new role with the Global Campaign for Education, former British Prime Minister Gordon Brown exemplified this approach, commenting:

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"As well as boosting jobs and gross domestic product, the evidence is clear that education combats malnutrition, maternal and infant mortality and HIV/Aids. This month Unesco estimated that if every child could read, 171m children could be lifted out of poverty. Put simply, going to school is the best anti-poverty, anti-famine, anti-disease and anti-unemployment programme"[1] (Brown, 2010).

Governments and international aid agencies have therefore given increased attention to the problem of educating the developing world, alongside their more direct financial relief and poverty reduction campaigns. The UN has given a pledge to "ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling" second amongst its Millennium Development Goals. Yet many involved in international development warn that the target will not be met if school attendance continues to grow at only its current rate. This is particularly so for sub-Saharan Africa where figures suggest, in many countries, at least one in four children of primary-school age were out of school in 2008[2].

There is no disputing the urgency of the problem of under-development. There is also little dispute about the importance of one aspect of that problem – the need for schooling and education. The question remains, however, as to how improvements in school enrolment should be achieved. The mechanisms of providing government-to-government aid and the supranational, inter-governmental context in which these problems are discussed, naturally lead to a bias in favour of solutions that involve government. The desire to achieve particular, defined targets by particular dates also inclines those with political authority to pull leavers to ensure that these targets are met. However, this article argues that there is an alternative. The alternative may take politicians out of their "comfort zone" but the rewards will be worth reaping.

The state education industry

Many organisations argue, either implicitly or explicitly, that not only should we seek widely available good quality education, but that this education must be publicly provided, centrally controlled and free. In their campaign literature, the UN boasts that "Public school enrolment in the most deprived districts and nationwide soared from 4.2 million to 5.4 million between 2004 and 2005" (our italics). Earlier this decade, Oxfam warned that "many developing countries are spending less than two per cent of GDP on primary education", and that they should therefore "produce national Education For All (EFA) plans...and should cover half the additional cost of achieving free and universal basic education"[3]. The Commonwealth Education Fund (CEF) is similarly reluctant to consider a possible role for small scale and decentralised initiatives, warning that "when there are hundreds or even thousands of non-governmental organisations (NGOs) in a country, it is impossible for governments to meaningfully involve them unless they are coordinated"[4].

> *Indeed, the very nature of the Millennium Development Goals, which are specific, measurable and time-constrained, demand a centrally planned approach, so that progress can be monitored, co-ordinated and controlled. They cannot, it is reasoned, be left to the whim of choices of individuals, local communities and other disparate, independent actors who may follow their own goals.*

The Commission for Africa argues that "making services accountable to communities either through their participation in design and delivery or through politicians is essential to improve the quality of those services and the effectiveness of investments"[5]. Indeed, the very nature of the Millennium Development Goals, which are specific, measurable and time-constrained, demand a centrally planned approach, so that progress can be monitored, co-ordinated and controlled. They cannot, it is reasoned, be left to the whim of choices of individuals, local communities and other disparate, independent actors who may follow their own goals.

Despite this bias within government and the development industry, recent evidence has revealed a dramatic proliferation of private schools, attended by the very poorest people in the world, usually run by members of the communities which they serve. However, even when the existence of such schools is acknowledged, they are rarely considered to be part of the solution, but dismissed as a poor substitute, operating on the margins for those who have been denied state education. This is firstly because most NGOs and international agencies desire free education, which, it is believed, only the state is capable of delivering: in the 2001 Oxfam report Education Charges – a tax on human development (page 1) it is argued that "education charges trap children in a cycle of illiteracy and poverty". Also, many researchers believe private schools to be of poor quality compared with government alternatives. According to the Oxfam Education Report, their services are of "inferior quality" and they will "restrict children's further opportunities"[6]. The Commission for Africa claims that most private schools are, "aiming at those who cannot afford the fees common in state schools" and are "without adequate state regulation and are of a low quality"[7]. The Department for International Development similarly condemn the schools as "below the desirable level"[8] and "a low cost, low quality substitute"[9] that will "[use] up scarce resources with limited benefits"[10].

The success of private schools for the poor

There is, therefore, a consensus amongst NGOs, governments and international agencies that universal primary education must be free and not just publicly financed but largely publicly provided. The role of private schools scarcely warrants discussion. Yet many of the world's poorest people are, in fact, meeting their own educational needs. Indeed, many

estimates suggest that such schools serve the majority of the world's poorest children – at least in certain areas. Of the 561 schools found in the Ga district of Ghana, 407 were private[11]. Likewise, in the poorest areas of Lagos State, Nigeria, 71% of schools were found to be private, with the unregistered far outnumbering the registered[12]. In the informal settlement of Kibera in Nairobi, Kenya, 76 private primary and secondary schools were found, collectively serving 12,132 pupils, compared with a mere 9,126 pupils attending the five government schools[13]. This phenomenon can be found all over the developing world: wherever there is a need, enterprising people find innovative ways of fulfilling that need, motivated by a mixture of a philanthropic desire to help their communities and business sense to see the opportunity to make a living for themselves.

Many researchers and campaigners persist in their belief that such schools are just a last resort, despite recognising the poor quality of many state schools. In the Oxfam Education Report it is conceded that "there is no doubting the appalling standard of provision in public education systems"[14]. Researchers have also accepted that in sub-Saharan Africa, private schools have "mushroomed due to the poor quality of government primary schools"[15] and that "the deteriorating quality of public education… created demand for private alternatives"[16]. Yet there is evidence that parents make a positive choice to send their children to the independent schools, not simply due to the inadequacy of the state schools, but because the private schools are able to provide the very high standard of education that parents desire for their children. For example, in Lagos State, comparisons of test scores revealed that mean maths scores were around 15 and 19 percentage points higher in registered and unregistered private schools respectively than in state schools. In English, they were as much as 23 and 30 percentage points higher respectively. Likewise, in Hyderabad, India, mean maths scores were between 22 and 25 percentage points above their government counterparts in private schools; again, the discrepancy was yet greater for achievement in English[17]. The performance of unregistered private schools is particularly telling. In these schools there can be no regulation because the schools do not officially exist. In many cases, bribes may be paid to local officials so that they turn a blind eye to their lack of registration with the government. Registration processes can be expensive and bureaucratic.

It is of particular interest that the majority of parents choose to spend their limited resources on these institutions – in spite of the fact that they often have access to free state schools. International agencies employ lofty rhetoric of human rights in their appeal for free public education. Yet a basic human right, established by the UN, is the right of parents "to choose the kind of education that shall be given to their children". Far from being "ignoramuses" who don't value education, as a senior official from Ghana's Ministry of Education commented[18] parents who choose such schools do so as they are anxious to ensure the highest possible standard of education for their children.

These focus group responses are not given as concrete evidence of the under-performance of state schools but of evidence that the parents of the very poorest children are more capable of making choices on their behalf than might be widely appreciated.

Parent focus groups conducted in Kibera, Kenya, reveal this strong concern for schooling standards, and acute awareness of the discrepancies between private and government schools. One parent explained: "even though people might question why I send children [to a] private school while there are free [government] schools, I am concerned with high quality subject teaching offered in this private school." Likewise, another told the researchers, "Tuition free [i.e., government] schools have large number of pupils and so one teacher has to deal with many pupils at the same time. In private schools you will find few pupils and the teacher will have enough time to attend to each child thoroughly." Another commented, "I am living next to parents who send their children to a government school and I always compare their children with mine who are attending private school. I always find private schools teach better than government schools from these comparisons".[19] Similar accounts are given by people from the slum of Makoko in Lagos, Nigeria. One woman observed that "children's books never get touched in the public school." Another parent commented: "We pass the public school many days and see the children outside all of the time, doing nothing. But in the private schools, we see them everyday working hard. In the public school, children are abandoned".[20] These focus group responses are not given as concrete evidence of the under-performance of state schools but of evidence that the parents of the very poorest children are more capable of making choices on their behalf than might be widely appreciated.

Counter-intuitive results from policies of "free" education

The fees required by these institutions may not in fact be such a great obstacle as is often thought. Firstly, the fees are generally affordable even for those on very modest incomes, as these schools must attract the custom of parents rather than relying on legal compulsion to guarantee attendance. In the Kibera settlement in Kenya, for example, mean fees per child range from 4.7% to 8.1% of the absolute poverty line income level[21]. Furthermore, such schools offer free or heavily subsidised places for orphans and others who are unable to pay the modest fees. Many also make arrangements with the parents to make the payments more manageable. As a parent from the Kibera focus group explained: "I am thankful to the head teacher very much for being very considerate to parents. You will never see a child not in school because of delay paying school fees. In those cases, the head teacher will write to the parent to ask them to meet with her to discuss when the fees can be paid. Here, with the little money we earn we can pay bit by bit"[22].

"In a worst-case scenario, the provision of free education can be an empty gesture. Parents, especially the poorest, are unlikely to send their children into education systems lacking even the most rudimentary requirements for effective learning".

There are also hidden costs at government schools, such as uniforms and equipment, which can render the ostensibly free education prohibitively expensive. One parent explained that to attend the state school she would have had to buy: "The school sweater which costs Ksh 600/- [£5] and you have to make sure you have two sweaters which is Ksh 1200/- [£10]. Good leather shoes and socks two pairs. You have to have two of everything"[23]. Independent schools rarely make such demands. A parent explained: "in a private school a child is allowed to attend school with only one uniform while in the Government school he must have two uniforms before he is allowed to attend school." Similarly, the public schools have a greater tendency to use their resources on things such as facilities and buildings, and demand additional payments such as building maintenance levies from parents to fund this. Independent schools however tend to concentrate solely on the quality of education delivered inside the school.

It is often the lack of these more superficial indicators of quality that cause agencies and charities to assume that the schools are of poor quality, despite the results they deliver and the fact that so many parents choose them. The parents, however, are less susceptible.

Yet it is their superior quality more than anything else which makes the independent schools a better use of a poor family's scarce resources than the state schools. Parents recognise that education can be a worthwhile investment for their children's future success and financial security, and do not resent modest fees if they will help achieve this. The opportunity cost incurred from sending children to a school where they will not learn anything beneficial when they could otherwise be earning, is great. As a parent put it: "we produce ourselves the money, we get it through our own sweat, we cannot allow to throw it away"[24]. Indeed, even some international agencies and NGOs recognise this warning that: "In a worst-case scenario, the provision of free education can be an empty gesture. Parents, especially the poorest, are unlikely to send their children into education systems lacking even the most rudimentary requirements for effective learning"[25]. In fact, charging fees is part of the reason that private schools for the poor are successful. They are required to meet parents' genuine needs in order to survive, and the link with their communities is maintained. As one parent in Kibera suggested: "the teacher must also work harder on our children so that he earns his own living"[26].

Providing free state schooling can have a detrimental effect on both the private and state sector. Kenya is often cited as a great success story for free primary education as, when this was introduced in 2003, enrolment increased according to official figures. What these figures do not tell us, however, is that whilst enrolment in government and registered private schools, which these figures reflect, increased, there was a reduction in enrolment in unregistered private schools of around three times the size of the recorded increase in government schools[27]. In total, 33 private schools were forced to close. Many children who left the private schools did not transfer to the free government schools but were left with no school at all. The reasons for this require greater examination. It has been suggested, however, that when the children of the richer of the families (who were most able to afford the hidden costs at the state schools and also made the greatest contributions to the incomes of the private schools) left those private schools, the schools could no longer survive. This meant that poorer children at the school, who could not afford the 'free' public schools

with their high hidden and opportunity costs and who would have benefited from cross subsidies within the private schools, no longer attended any school.

Counter-intuitively, free public education may not be the means to achieve education for all, but may instead actually damage the cause. With regards to what aid agencies can do, they must, firstly, overcome their scepticism towards the private schools and embrace them as part of the solution. For this, they must abandon their ideological distrust, understand the superficialities of their former views and surrender their own ideas of what a good school should look like. They should allow families to focus on their own needs. This does not mean that private schools for the poor would not appreciate any form of assistance. For example, they lack many basic facilities and can only pay teachers modest wages. As such, some financial support might be helpful. The point is that such financial support must support families in the choices they make for their children and not run in contradiction to those choices. Financial support must also not compromise the independence of these schools. As one parent in the Kibera focus group said:

> "We are missing some important facilities, we do not have enough classes and we cannot afford to pay the teachers. We wish the government could assist us. Although they talk of free education, [in the government schools] children are not learning as teachers are not concerned with them. The quality of education in public schools is low. Therefore, it will be much better if the government assists us to develop the private schools and see how it can help pay the teachers. The government… could also have assisted private schools in some way… We would have better classes, and more teachers paid well. That is why we still insist on private schools." (ibid.: 464)

Conclusion

One way that governments could support private schools without compromising their autonomy and quality could be to introduce a system of school vouchers. Researcher Ali Salman has shown how a limited voucher programme in Pakistan has helped develop high-quality education provision amongst the poor[28]. The programme is still small and central government is not generally supportive of its expansion. The key to the programme is that it helps families achieve their own educational objectives for their children rather than falling into the trap of centrally designing a system for them. In this context, governments might wish to take a leaf out of one of the main Catholic social teaching documents on education – especially

given the Christian tradition in many under-developed countries (though the same principles apply in Islam too): "Parents who have the primary and inalienable right and duty to educate their children must enjoy true liberty in their choice of schools. Consequently, the public power, which has the obligation to protect and defend the rights of citizens, must see to it, in its concern for distributive justice, that public subsidies are paid out in such a way that parents are truly free to choose, according to their conscience, the schools they want for their children."[29] Voucher programmes can help achieve this aim. It should be added that a voucher programme need not be comprehensive. There are considerable advantages from at least some financial contribution from parents.[30] Unlike with free education funded through direct payments from the government to certain schools, independent schools would still be required to compete for custom and thus would continue to offer high quality education in accordance with community need.

Whilst education may be important for development it is not the 'magic bullet' often supposed. An underdeveloped education system is as much a symptom as a cause of poverty.

International aid agencies could also assist by providing schools with equipment, resources and perhaps funding for scholarships for orphans and others who would otherwise be unable to afford schooling. This would only be a response to what schools themselves have asked for. The temptation to impose their own visions must be resisted. Whilst contributions would no doubt be welcomed and would help schools to expand and raise standards yet further, it is important that financial independence is retained.

Finally, many researchers and campaigners may point out that, even if private schools are providing a good education, the standard is still vastly lower than in the developed world, with children spending much less time in education, and learning only the basics such as their own language, English and maths. Furthermore, it may well be asked, if there is so much good private education for the poor, why do these countries remain poor and underdeveloped? Whilst education may be important for development it is not the 'magic bullet' often supposed. An underdeveloped education system is as much a symptom as a cause of poverty.

The only real solution to global poverty (and education provision) is genuine, comprehensive economic development – this is also the key to ending child labour. To this end, governments and campaigners must combine their appeals for educational assistance with more general policies for development such as: protecting property rights; the rule of law; the enforcement of contracts; the rooting out of corruption; and macro-economic stability. It is, nevertheless, remarkable what private schools for the poor have achieved. They provide a high quality education to some of the world's poorest people. The Millennium Development Goal for universal primary education may or may not be a realistic aspiration. However, development should be pursued through the means of helping families achieve their legitimate development objectives. It should not be pursued by imposing the government's view (or a foreign government or NGO's view) of development from outside. As countries develop, and their economies grow more complex, requiring a more skilled and specialised workforce, private schools will continue to be able to respond to the communities' needs, raise standards, and fuel development. Experience in the West suggests that we cannot place such confidence in government-controlled systems of education.

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Inspiring Education: Some Reflections on Social Entrepreneurs and Education

Given the results, South African education is in need of some inspiration. When the tried and tested ways of educating become tired and ineffective, it may be that a radical rethink of education is in order. This may be so especially when we consider education and poorer communities.

A substantive body of evidence indicates a relationship between good education and economic growth.[1] This makes it even harder to ignore the declining matric pass rate, the striking teachers, the disillusioned, unemployed youth and the many other problems with the education system. It appears that education is failing the people that it could help the most. Is a radical rethink of the whole way we educate our children perhaps not required? After all, they are a country's greatest resource.[2]

Innovation in methods of teaching and learning are revolutionising education globally. Remarkable thinkers, social entrepreneurs, leaders, teachers and IT specialists are making a difference in all aspects of education both internationally and locally. Some are interested in scale, and others are committed to fully educating one child at a time. This article introduces some of the social entrepreneurs who realise the importance of education in shaping life projects and in preventing poverty, fostering social stability and protecting the environment[3] and have used their ideas and strengths to provide solutions to different problems around the world. Their work is not necessarily based on strict scientifically proven processes, but their ideas challenge standard assumptions about schooling and education. Their innovation and creativity might provide South Africans with some inspiration and help us to realise that it is not only teachers and lecturers that are needed to educate a nation.

Remarkable people – marvelous ideas?

Ken Robinson, a creativity expert, and Charles Leadbeater, an innovation expert, both based in Britain, are concerned with the large numbers of children throughout the world who are opting out of education and choosing rather to join gangs or embark on a life of crime. These children may think that a life away from school is more interesting; but that 'exciting' life unfortunately ends up all too often by being a short one.

In his work for the British government on education and creativity,[4] Robinson highlights his belief that a simple reform of education systems will not be enough to encourage children to choose school over other life paths. He suggests that a revolution in education is needed. He notes that our communities depend on many different types of talents and the single notion of ability that is reinforced by current schooling systems can lead to children dropping out of school because it does not feed either their spirit, passion or

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energy[5]. Robinson acknowledges the importance of some sort of National Curriculum but despairs that the standardised tests and lack of creativity in the classrooms are not what the business world is looking for. Businesses seek creative and innovative school leavers and the curriculum and structure of a school day needs to give teachers room to inspire and instill creativity while nurturing the individual talents of their students.[6]

In his paper, *Learning from the Extremes*, and through other investigations, Leadbeater has suggested that in developing countries around the world, one of the possible reasons for the high dropout rate from schools could be the delayed payoff from education. For a poor person to wait 10 years to get something from education is too long. Like Robinson, he worries that children are being educated to pass exams but are not receiving the kind of entrepreneurial and social skills that will allow them to flourish. He thus believes that 'education needs to work by pull not push' and encourages thinking around reinventing schools that attract children with the promise of providing an education that can earn a living.[7]

For a poor person to wait 10 years to get something from education is too long. [Leadbeater] worries that children are being educated to pass exams but are not receiving the kind of entrepreneurial and social skills that will allow them to flourish. He thus believes that 'education needs to work by pull not push' and encourages thinking around reinventing schools that attract children with the promise of providing an education that can earn a living.

The power of children to teach themselves

Some researchers have even questioned the notion that teachers are needed to impart information. Sugata Mitra, an education researcher born in India but currently Professor of Education Technology at Newcastle University in the UK[8], has shown through his 'Hole in the Wall' experiment that children with access to a computer can answer almost any question and teach themselves even complex subjects like biomechanics. In his first experiment he installed a computer into a wall in a slum in a remote part of India where the children could not speak English and had never even heard about computers. He placed hidden cameras to monitor behaviour. The first child to come across the computer took a mere eight minutes to figure out how to use it and to start browsing the Internet. With no adult supervision, just the power of children in groups, over 300 children in that slum became computer literate in 3 months through curiosity, by teaching themselves and then teaching fellow children. They even taught themselves some English to enable them to make better use of Google. Mitra repeated this experiment all over India and he believes (although he admits that it would take years and thousands of dollars to comprehensively prove) that education is a 'self organising system, where learning is an emergent phenomenon'. This does not mean that teachers should be replaced by computers. Mitra notes that there are many areas of the world where good teachers refuse to go, or even where there are no schools. Here, computers might be able to make an alternative primary education possible.[9] Mitra's research suggests that the curiosity of children to find the answer by themselves or through collaboration with other children ensures that this knowledge is retained. Clearly if the area is of interest to the child, she will pursue the research.[10]

No ordinary Laptop

Nicholas Negroponte, Chairman Emeritus of the Massachusetts Institute of Technology (MIT) Media Laboratory and founder of the One Laptop Per Child Foundation (OLPC), is another researcher who has followed similar lines of inquiry and investigation. Negroponte believes that most children in the developing world are not receiving proper education which results in them and their parents remaining in poverty. Thus, the mission of his Foundation is to 'create opportunities for the world's poorest children by

providing each child with a rugged, low-cost, low-power, connected laptop with content and software designed for collaborative, joyful, self-empowered learning'. The aim is for these laptops to cost USD100, and for every child aged six to twelve and teacher in a targeted community to posses one. OLPC believes that children who have been given this technology will take an active interest in their own education as it gives them a tool to 'learn, share and create on their own' through this window into the world. This access to vast amounts of information, coupled with the ability to collaborate with each other, allows children to be learners and teachers and gives them a whole new way of thinking and an enthusiasm for learning.[11]

Educating Leaders

Slightly closer to home, and in the field of higher education, Patrick Awuah believes that there is a huge opportunity for inspired leadership to drive progress and transformation on the African continent. Awuah returned to his home country, Ghana, after studying in the United States and working at Microsoft. On his return he discovered that Ghanaian university graduates had a greater sense of entitlement than responsibility. With the belief that leadership would be a large contributing factor to the success of Africa, Awuah decided to change this mindset and established Ashesi University to 'educate a new generation of ethical entrepreneurial leaders in Africa'[12]. Apart from giving the students an outstanding education, Ashesi University's aim is to promote critical thinking skills and instill integrity to give students the 'courage it will take to transform a continent'[13]. Given the crisis of leadership in South Africa, universities would do well to investigate Ashesi and the motivation behind it.[14]

A similar method of teaching is being applied in Cape Town by TSiBA, the Tertiary School in Business Administration which 'offers emerging leaders an opportunity to study an enriched Bachelor of Business Administration degree that is focused on entrepreneurship and leadership'. TSiBA's mission is 'to be an innovative learning community that graduates entrepreneurial leaders who ignite opportunity and social change'. Each student at TSiBA is on a full scholarship which enables the organisation to recruit talent from poor communities. TSiBA makes use of the 'Pay it Forward' concept to encourage past students to pass on their skills and experience to their home communities and they hope that the benefits will extend eventually to the entire Western Cape area.[15]

One child at a time

A social entrepreneur who is not interested in scale and prefers to look after the education of one child at a time is Shukla Bose, founder and head of the Parikrma Humanity Foundation in India. The Foundation has established schools in remote and poor areas in India to try and bridge the gap between the poor and the privileged by giving poor children an education to help them lift themselves and their families out of poverty. Parikrma takes care of a child's education from pre-primary to university and was established as a reaction to the poorly functioning mass schooling system run by the government. This allows some of the poorest children in India to gain access to the best jobs and enables them to compete with the privileged children. Children are even taking back what they've learned to the slums and teaching their parents how to read and write. Parikrma looks at children's lives holistically by involving itself in the whole education cycle including helping their university graduates to find jobs and taking part in healthcare and nutrition programmes. Bose believes that this kind of involvement and nurture is the only way to break the cycle of poverty.[16]

There are currently three schools in the country, two in Cape Town and one in Johannesburg, which aim to uplift children from impoverished communities by focusing not only on academics but on cultivating socially responsible citizens who are able to reach their full potential through whole person development.

Similar thinking and methods have been applied in South Africa in the way of LEAP Science and Maths Schools. There are currently three schools in the country, two in Cape Town and one in Johannesburg, which aim to uplift children from impoverished communities by focusing not only on academics but on cultivating socially responsible citizens who are able to reach their full potential through whole person development. It is hoped that these all-rounder children will ultimately transform their communities and eventually, the whole country.[17]

Technology and change

Many of these social entrepreneurs believe that with technology, there is hope. The old way of buying expensive text books that might not be entirely relevant, does not need to be the current and new way. Richard Baraniuk, Professor of Electrical and Computer Engineering at Rice University in the US[18], has noted that there is a large divide between the creators of text books and the final

Obami allows teachers, learners and even parents from registered schools to collaborate with each other. Children are thus able to develop their own course materials and can interact with children from other schools. Teachers from different schools will also be able to easily collaborate with each other to discuss courses or teaching methods.

A South African education innovator based in Johannesburg, is Barbara Mallinson who has started a social-networking site specifically for schools, called Obami. Drawing ideas from other social networking sites such as Facebook and Myspace, Obami allows teachers, learners and even parents from registered schools to collaborate with each other. Children are thus able to develop their own course materials and can interact with children from other schools. Teachers from different schools will also be able to easily collaborate with each other to discuss courses or teaching methods. The possibilities are endless.[21]

Way forward for South Africa

Should we do away with teachers and leave the education of our children in the hands of computers? Clearly not. The importance of teacher-student contact is an essential part of learning but where there are no teachers, or where technology can improve the teaching process, it should be embraced.

The point is not to replicate the ideas of the people mentioned, but rather to use this kind of thinking and innovation to rethink some parts of education in South Africa. These social entrepreneurs all realise that education needs to be focused on teaching with the future in mind. Being able to predict what the world is going to be like in the future is clearly not possible, but it is possible to impart skills to young people to enable them to navigate in that world. We need to think differently, we need to innovate, and we need to create. We can't afford to let our greatest resource go to waste.

users, the teachers and the learners, and with the global crisis in education he decided to use his expertise to make a change. He has created a website called Connexions which cuts out the need for conventional text books which are expensive and often disconnected from the teachers and learners who need to use them. His vision is to 'create a free global online education system that puts the power of creation and collaboration in the hands of teachers worldwide'[19]. Connexions is an online database of modules, courses and course materials which have been uploaded by teachers, lecturers and professors worldwide and can be easily linked together. Any teacher with an internet connection can access the material, customise it to her own environment, arrange it to her liking and print her own course packs or even text books very cheaply and without worrying about copyright infringements. He calls it 'open source learning' as it allows for knowledge to be shared.[20]

NOTES

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Establishing a Coordinated Post School System of Education and Training

John Pampallis
was appointed a
Special Advisor to
the Minister of Higher
Education and Training
in July 2009. He
was previously the
Director of the Centre
for Education Policy
Development (CEPD)
for over twelve years
and, before that,
was Director of the
Education Policy Unit at
the former University of
Natal. During the 1980s
he was a teacher
and later the Deputy
Vice Principal of the
Solomon Mahlangu
Freedom College
(SOMAFCO), a school
run by the African
National Congress
for young exiles in
Morogoro, Tanzania.

Before the 2009 general election, when the issue of splitting the Department of Education into two was proposed by some in the ruling African National Congress, the debate that ensued centred around the issue of whether it was a good thing or not to have separate departments for schooling and higher education. Right up to the time when the new departments were established there was still no clarity as to how exactly they would be constituted. Even after the announcement of the new ministries in May 2009, for example, many inside and outside of government appeared not to have understood for some time that responsibility for the SETAs, the National Skills Authority and the National Skills Fund was moving from the Department of Labour to the new Department of Education and Training.

I had argued in an Op Ed article in *Business Day*[1] that it would be unwise to split the Department of Education without a great deal more study of the possible consequences and 'a clearer understanding gained of both the benefits and potential pitfalls.' The current Minister of Higher Education and Training, Dr Blade Nzimande, has told me that he too was sceptical of the idea of creating two education departments when the idea was first mooted. But as we all now know, two departments were established: the Department of Basic Education and the Department of Higher Education and Training.

After the election, the new Minister of Higher Education and Training asked me to join him as an advisor and I accepted. It would no doubt have been simpler and a little quicker to establish the new department if there had been more careful prior planning. However, as the scope of the new department became apparent, one began to see the possibilities for a new way of working which would overcome some of the impediments posed by the structural arrangements of the immediate past.

This article examines the new concept of a post-school system of education and training which is so central to the work of the new department and the advantages of the new system compared to its predecessor. First let us begin with some recent South African education policy history.

Historical Review

In the early 1990s the broad democratic movement, led by the African National Congress (ANC) but including a wide array of social forces, was preparing for the transition to a democratic society. Those involved in developing education and training policy advanced the idea of an integrated system of education and training which would be implemented by a single department of state. This was advanced not only by the ANC's *Policy Framework for Education and Training*[2] (the so-called Yellow Book), but also by the report of the National Training Strategy Initiative, developed by a multi-

stakeholder team including the ANC/COSATU alliance, business representatives and representatives of the former government[3].

As it turned out, this did not transpire. There were other interests and views in the ANC (and possibly more broadly in the government of national unity) which saw things differently and these prevailed when the new government was established. The result was that after the 1994 election, responsibility for workplace-based and in-service training of workers remained with the Department of Labour and the formal education system became the responsibility of the Department of Education and the provincial education departments.

…after a review of the National Qualifications Framework was commissioned by the two departments and a report presented in the year 2000, it took nearly seven years for the two departments to agree on an appropriate response to the recommendations.

The intention of the new government was that the two departments should cooperate in establishing and managing the National Qualifications Framework and that they should develop an integrated approach to education and training. To some extent this happened, but institutional interests and a tendency on the part of the departments to think rather narrowly about their own responsibilities militated against a close cooperation. Consequently the relationship between the two departments was often characterised by tensions and disagreements which slowed cooperation. For example, after a review of the National Qualifications Framework was commissioned by the two departments and a report presented in the year 2000, it took nearly seven years for the two departments to agree on an appropriate response to the recommendations.

In a modified form we have, since May last year, come back to the idea of an integrated system of education and training. The government split the Department of Education into a Department of Basic Education (DBE) which deals only with schooling and the Khari Gude adult literacy campaign on the one hand, and a Department of Higher Education and Training (DHET) on the other.

The DHET takes responsibility for university education, the FET college sector, all post-literacy adult education, and for workplace-based and other in-service training of workers. The latter includes the infrastructure of the SETAs, the National Skills Authority and the National Skills Fund, which have been transferred from the Department of Labour to the DHET. Provincial departments of education, which previously had direct responsibility for the management of the FET colleges are in the process of handing over this responsibility to the DHET.

The Human Resources Strategy for South Africa (HRD-SA) – an initiative of government which includes various social partners including labour, business universities and training institutions – is led by a Council chaired by the Deputy President, but is based in, and managed, by the DHET, which thus maintains a central role in planning and aligning human resources development plans for the country. The HRD-SA provides the over-arching framework for all the work of the DHET.

Although the idea of an integrated education and training system for South Africa predates the advent of democracy in 1994, the concept was not very fully developed in the first decade and a half of democracy – largely because our institutional arrangements separated education and training and did not impel us to look for synergies between them.

The result was a system (if one can call it that) of post school education and training consisting of institutional types which did not articulate with one another. The SETAs worked on a logic of their own with no real thought to the possible advantages of working closely together with the public colleges and universities. The colleges and universities did not make use of the SETAs to assist them in building closer contacts with the labour market.

Surprisingly, there was even very little cooperation between FET colleges and universities even though responsibility for both was located in the same department: the Department of Education. This was largely, I believe, because that Department was organised along the lines of the bands of the National Qualifications Framework: a branch for general education and training, a branch for further education and training and a band for higher education. FET colleges were in the further education and training branch which was responsible for both the colleges and the senior secondary schools. The colleges were thus seen increasingly as, in some sense, vocational equivalents of the senior secondary schools and not as part of a post-school system which prepared young people for the world of work as the universities do. The Higher Education Branch operated in relative isolation, with responsibility for the universities. Consequently, the department was not impelled by its structure to look for developing the relationship between colleges and universities. The current organisational configuration changes this.

We currently have approximately 3 million young people between 18 and 24 years of age who are not in employment, education or training, representing a huge waste of human potential. Approximately an equal number of adults over the age of 24 are in the same position.

I should say, parenthetically, that I claim no greater virtue for the DHET, where I work, as compared to the former Department of Education or the Department of Labour as it was previously configured. I only claim that, as a country, we now have a better arrangement for an integrated approach to education and training, and also, by the way, for allowing a dedicated focus on our school system – by the Department of Basic Education.

Current Challenges

One of the most important strategic imperatives of the DHET now, is precisely to look for synergies between institutional forms. The department is being conceptualised as focussing on the provision of diverse and relevant post-school education and training opportunities for youth and adults in a range of different institutions within one coherent system. One of the main challenges facing the department is developing a policy which brings together our various areas of responsibility (i.e. universities, colleges, SETAs and the National Skills Fund, and adult education). We are beginning to break down the silos which have characterised the relationships between these different areas up to now. The government needs to exploit the advantages of having all these different institutions in a single department and to develop synergies between them to the mutual benefit of them all – and also to the benefit of students and of education and skills development in South Africa.

The challenges are enormous. We currently have approximately 3 million young people between 18 and 24 years of age who are not in employment, education or training[4], representing a huge waste of human potential. Approximately an equal number of adults over the age of 24 are in the same position. All this establishes a basis for the continuation (and possibly even the expansion) of poverty in South Africa, and also

increases the possibility for the kind of social instability that we have not seen before in this country. An expansion of the education and training system and an improvement in its quality, while not a silver bullet that will solve all our problems, is an indispensable part of any viable strategy to tackle them.

The shortage of skills is one of the key constraints on our economic growth. Given this reality, education and training must be an important part of any strategy to combat poverty, increase economic growth, provide employment or to equip people with the skills and the confidence to establish their own small businesses – or cooperate with others to set up small companies or cooperatives.

One of the claims made by government is that planning the post-school system as an integral whole will assist in improving and expanding the opportunities available to youth and adults and help to boost the economy. Education and training alone, it is true, are not a cure for unemployment. Without a growing economy and the creation of job opportunities, even well-educated people will not escape the scourge of unemployment. Nonetheless, it is true that in the midst of massive unemployment and in the midst of an economic recession, our economy is still experiencing a shortage of skilled labour. The shortage of skills is one of the key constraints on our economic growth. Given this reality, education and training must be an important part of any strategy to combat poverty, increase economic growth, provide employment or to equip people with the skills and the confidence to establish their own small businesses – or cooperate with others to set up small companies or cooperatives.

But can simply treating education and training as part of a single post-school system provide real advantages in expanding access to knowledge and skills or in improving the quality of the education and training provided? What are the specific advantages to be gained by integrating our approach to education and training? A few examples will suffice to give an idea.

Our universities could play an important role in assisting the FET Colleges. University education faculties have traditionally all but ignored the needs of the college sector while most college lecturers have only occupational qualifications (e.g. as skilled trades people) but no pedagogical training. The establishment of the DHET has given impetus to a move to change this situation, with some universities now planning to provide pre-service training to college lecturers – as well as providing for upgrading to those currently working in the colleges. The DHET is encouraging this trend and foresees a time when all college lecturers will be trained in both their subject areas as well as in teaching strategies and methodology. Universities – and not only education faculties – also have a role in researching the whole area of skills development and the role of the colleges. Such research will strengthen the empirical basis on which we make policy decisions; and over time, research teams consisting of both university academics and college lecturers, could deepen the quality of the research done.

Articulation for students between FET colleges and universities is still poorly developed, with students finding it very difficult to move on to university once they have completed their studies at a college. While arrangement for articulation do exist between some colleges and particular universities, there is a need to systemise the requirements for students to proceed from college to university, rather than leaving it to an ad hoc arrangement between individual colleges and universities.

Many students in FET colleges and universities of technology find it difficult to find opportunities to gain practical, workplace experiences. This is becoming a serious problem.

Many students (we do not even know exactly how many) complete their theoretical training as artisans or engineering technicians and technologists at FET colleges or universities of technology, but are unable to complete their qualifications because of a lack of practical work experience. However, the SETAs have close relationships with employers and, should help to facilitate the establishment of partnerships between the employers on the one hand, and FET colleges and universities, on the other. The SETAs and the national skills fund also control money for spending on education and training and can help to facilitate some of these training partnerships.

From next year, a new National Skills Development Strategy (NSDS III), an overarching strategy for skills development, will be implemented to guide sector planning for the next five years. The draft NSDS III promotes greater cooperation between SETAs and formal, public educational institutions. For example, it proposes a new programme (called PIVOT), funded by SETAs, which provides for increased numbers of young people to undertake professional, vocational and academic learning programmes that meet the key needs of economic growth and social development. These programmes will generally combine course-work at universities, universities of technology and colleges, together with structured learning at work. This is achieved by means of professional placements, work-integrated learning, apprenticeships, learnerships, internships and the like. These will provide an alternative to the multitude of short courses currently provided through the SETAs, which cost large amounts but often provide little of substance.

> *… programmes will generally combine course-work at universities, universities of technology and colleges, together with structured learning at work. This is achieved by means of professional placements, work-integrated learning, apprenticeships, learnerships, internships and the like.*

Some concluding remarks

From these examples it should be clear that the creation of a coordinated post-school education and training system stands to benefit its various sub-sectors and to provide education and training opportunities where they did not exist before.

Naturally, an integrated approach to education and training will not on its own be enough to tackle the major challenges facing the post school sector. The challenges are enormous. There is, for example, a need to radically enlarge the sector, providing greater access to opportunities for the youth – particularly for poor students who are currently excluded from education and training. We must also improve the quality of education and training through a range of programmes such as more effective student academic, social and material support, more relevant curricula and better teaching. Institutions must also be strengthened through improvements in governance, management, policies and infrastructure, especially in our weaker institutions.

The DHET has developed, or is developing, strategies for tackling all of these challenges and more. However, the establishment of an integral, coordinated post school system, planned with the needs of both students and the economy in mind, is clearly an important advantage which will assist us to confront the challenges facing us.

NOTES

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Educating the Educators: Challenges facing Teacher Education & Development in SA

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It is well known that South African school learners score exceptionally poorly in internationally benchmarked evaluations,[1] and that direct contributors to this state of affairs are low teacher productivity and the poor quality of teaching, especially teachers' poor conceptual and content knowledge.[2]

Efforts to improve the quality of our teachers and their teaching have been underway for several years. These efforts have included familiarising teachers with the new curriculum, and especially the revised National Curriculum Statements, through short courses and workshops; upgrading the qualifications of under-qualified teachers through programmes such as the National Professional Diploma in Education; developing teachers' subject competence through various Advanced Certificates in Education; identifying opportunities and providing support for teacher development, through the Integrated Quality Management System and the Quality Teaching and Learning Campaign; as well as ongoing continuing professional development programmes.

While these initiatives have had some success, so much more remains to be done. It will take years, perhaps even decades, of concerted and sustained effort to improve the quality of teaching and learning in the South African schooling system. Teacher education and development, in particular, must still confront numerous challenges. Coordination of the efforts of national and provincial governments, constitutionally obliged to share responsibility for all non-tertiary education matters, is poor. New well-qualified teachers are not being promptly employed by the system which has directly subsidised their training, and existing qualified teachers are being inefficiently utilised in schools. Funding mechanisms, apart from also being affected by the constitutional 'concurrent competence' for education, are cumbersome, ineffectively utilised and poorly monitored.

Furthermore, efforts to recruit and retain teachers are negatively affected by the poor public image of the teaching profession, and teacher morale is low. Many teachers are under-qualified, and many more are ill-prepared and inadequately supported to teach the grades to which they are assigned. Both practicing and potential teachers in some rural and remote parts of the country do not have ready access to continuing professional development or initial teacher education facilities. Besides, the existing capacity of institutional teacher education providers is insufficient for the needs of the system in terms of both quantity and quality, and existing qualifications, programmes and short courses (both formal and informal) are of uneven merit and relevance.

South Africa has had a tendency to see itself (and to be seen) as unique or extraordinary,

whether in the depths of apartheid oppression or at the pinnacle of the rainbow nation. In education this exceptionalism has often manifested itself in the form of rather idealistic policymaking coupled, unfortunately, with wretchedly inadequate policy implementation. But the country's educational problems can neither be legislated away, nor can any proposed solutions be instantaneously carried out. Indeed, many of the problems are not unusual, even when compared with more developed countries.[3] The challenges facing teacher education and development in South Africa are unexceptional and ordinary, and being ordinary they require ordinary solutions – solutions which must be planned, methodical, consistent and focused, but are ordinary nonetheless. Extraordinary measures are not required; on the contrary, the things that need to be done – managing, supporting, attracting and improving teachers and teaching – are already being done, everyday – they just need to be done much more, and much better!

The coordination challenge

Shared intergovernmental responsibility for the training and development of teachers has presented difficulties to all South African governments since 1910, and post-apartheid governments have been no exception. Until 1994, provincial colleges of education typically trained primary school teachers while universities mostly trained secondary school teachers. The effect of the 1995 White Paper on Education and Training and subsequent legislation was to change all that, concentrating all teacher education in the higher education sector. Most colleges of education continued to carry out educational functions,

To date, efforts to address the needs of individual schools for sufficient numbers of quality teachers competent to teach particular subjects have been hamstrung by poor coordination between national planning, on the one hand, and provincial priorities, on the other.

with many being incorporated into higher education institutions (either Further Education and Training colleges or universities), but it is the universities – themselves rationalised and merged – which now have primary responsibility for the training of teachers. Yet in terms of the 1996 Constitution "education at all levels, excluding tertiary education" remains an area of concurrent national and provincial legislative competence.[4] Hence, while new teachers are trained and practising teachers further developed mostly by the universities, and hence at the national level, they are appointed and employed by provincial governments. To date, efforts to address the needs of individual schools for sufficient numbers of quality teachers competent to teach particular subjects have been hamstrung by poor coordination between national planning, on the one hand, and provincial priorities, on the other.

This state of affairs has been exacerbated by overlapping and duplicated functions with regard to teacher development and support within and between both national and provincial departments of education, making it especially difficult for identified shortages of staff, infrastructure, capacity and appropriate skill levels to be addressed. For example, the last strategic plan of the former national Department of Education, before it was split into the separate Departments of Basic Education and of Higher Education and Training, lists teacher development activities as taking place under the auspices of a multitude of different directorates.[5]

In addition, provincial education departments and teacher education providers even in the same province, are seldom aware of each other's needs and priorities; and activities at district education offices are insufficiently synchronised with provincial requirements. This has resulted in delays in the deployment, and the imperfect utilisation, of teachers, even to the extent that new, well-qualified teachers of 'scarce' subjects like Mathematics and the Sciences, who have been trained using Funza Lushaka bursary monies, are

waiting six months or more before being placed in a school, and even then usually in a temporary position.[6]

All this is compounded, on the one hand, by the apparent unwillingness or incapacity of provincial authorities to utilise available legislation (such as the Employment of Educators Act) in order to insist – in the face of inertia and occasional outright resistance from schools and individual teachers alike – that newly qualified teachers are placed in posts and places where they are most needed.[7] On the other hand, several provinces continue to hire unqualified people to fill vacant teaching posts, in some cases going so far as to justify the practice as a solution to high unemployment.[8]

… many other countries – far poorer than South Africa – achieve better results in terms of learner achievement, retention and completion; and there is a small but significant number of schools in the country whose learners perform well despite poor school infrastructure, the poverty of their community and the unexceptional qualifications of their teachers.

The funding challenge

The funding of teacher education and development, which is also affected by the constitutionally-mandated 'concurrent competence' for education, can in large measure be considered to be subsidiary to the need to improve coordination and planning. South Africa has been spending billions on education every year since 1994. In 2010, 18.2% of the consolidated national budget, or R165.1 billion, was allocated to education.[9] Despite massive infusions of money, however, the performance of the system remains weak. Internationally, it is known that increased educational expenditure does not necessarily translate into better educational performance.[10] Moreover, many other countries – far poorer than South Africa – achieve better results in terms of learner achievement, retention and completion; and there is a small but significant number of schools in the country whose learners perform well despite poor school infrastructure, the poverty of their community and the unexceptional qualifications of their teachers.[11] Thus, while funding is essential, and little can be expected to change without it, it is even more important to make efficient and effective use of available monies, as well as of existing resources, skills and facilities. This is by far the greatest challenge when considering the issue of the funding of teacher education and development.

Most of the 23 universities train teachers, but few offer the full suite of educational programmes and qualifications; there are also significant variations between institutions regarding the number of new and practising teachers they choose to enrol, and their capacity to manage funds for these purposes. The National Treasury includes funds for teacher education within the bloc grants provided to each university, but it is not clear whether such funds are fully utilised and, if so, for exactly which purposes; each institution has its own formula for allocating money to faculties and programmes, and Faculties of Education are seldom deemed to be especially important or accorded the highest status within academia.[12]

The greatest proportion of funds available for teacher development are controlled by the nine provincial governments, which annually receive an 'equitable share' of national revenue, including funds earmarked for teacher development. Provinces are also required to utilise 1% of their human resources development budget to develop the skills of their employees, including teachers. However, the utilisation of these funds varies widely amongst provinces; they are seldom optimally used and are occasionally set aside for purposes other than education. Reporting and monitoring mechanisms regarding actual expenditure on teacher development – how much is spent on developing how many teachers in which areas of need – are also weak; even direct requests from the national

level for specific information may be complied with only tardily and incompletely.

The recruitment and retention challenge

The poor public image of the teaching profession has made it difficult to recruit sufficient numbers of quality new teachers.[13] Numerous factors are responsible for the declining attractiveness of the profession, including poor working conditions, low job satisfaction (including limited career advancement and insufficient recognition), learner ill-discipline, the overcrowding of schools and classrooms, uneven parental participation and nepotism, as well as greater status and remuneration associated with some private sector occupations.[14] Policy overload, particularly the demands of a brand new curriculum for which teachers are still being retrained more than a decade after it was first introduced, together with the system of continuous assessment and the Integrated Quality Management System, have made great inroads into teachers' time.[15] The failure of government to properly sell its often idealistic new education policies to both teachers and the public, as well as limited government capacity to implement these policies, starkly highlighted by the inept and ineffective retrenchment and redeployment efforts of the late 1990s, have all contributed to negative perceptions of education, reducing the number of potential recruits and making it more difficult to retain quality teachers.[16]

Recruitment campaigns, the provision of bursaries and other efforts to address the highly publicised but poorly researched shortage of teachers – approximately 6 000 new teachers are being produced per annum, but an estimated attrition rate of 5%–6% suggests that the system actually needs some 20 000 new teachers every year – are severely hampered by the low esteem in which the profession is currently held.

A recent study found that some 6.5% of white learners, but only 2.5% of black African learners, aspire to study education,[17] which has implications not only for the potential total number of new recruits proportionate to the population, but also for those able to teach in an African language. Furthermore, most intending student teachers plan to teach in the Further Education and Training phase (Grades 10-12),[18] which puts even more pressure on the need for more Foundation, Intermediate and Senior Phase teachers. Many Grade 12 learners believe that studying education will significantly enhance their employability – but not necessarily in the education profession:[19] "commitment to the notion of studying education … [is] far stronger than commitment to the notion of entering the teaching profession".[20] Indeed, as many as a third of newly qualified teachers choose not to teach in South Africa, or not to teach at all.[21] Recruitment campaigns, the provision of bursaries and other efforts to address the highly publicised but poorly researched shortage of teachers – approximately 6 000 new teachers are being produced per annum, but an estimated attrition rate of 5%-6% suggests that the system actually needs some 20 000 new teachers every year – are severely hampered by the low esteem in which the profession is currently held.[22]

The quality challenge

Improving the image of teaching will go a long way towards attracting more teachers; but it is not just numbers that are needed: the quality of practising teachers, and the quality and the practicality of the programmes and personnel involved in training both new and practising teachers, need to be enhanced. Teachers' overall qualification levels have vastly improved since 1994, when more than a third of all teachers were un- or under-qualified. This proportion had dropped sharply by 2004, to 8.3%, but the rate of decrease then slowed (in part due to the continued hiring of unqualified personnel), being calculated as 6.5% in 2008.[23] Unfortunately, while improved qualification levels ought to correlate with improved teacher knowledge and skills, this cannot yet be assumed in South Africa; as shown by the recent Higher Education Quality Committee review of teacher education programmes, quality varies widely among the several providers of both initial and continuing professional development programmes.[24] These programmes, as well as the myriad short courses on which some providers have battened in search of quick profits rather than sustained improvement, are often badly coordinated, poorly managed, inadequately resourced and insufficiently focused on the specific content knowledge and pedagogical techniques that teachers require. The Integrated Quality Management System, intended to simultaneously promote teacher development and hold teachers accountable, has been treated with suspicion and resisted by teachers' unions, and has also been seen as time-consuming and imposing unnecessary paperwork on teachers. Thus, "notwithstanding the improved qualification profile of the teaching force", the government acknowledges that the majority of teachers are not yet sufficiently equipped to meet the country's current needs.[25]

In his 2009 State of the Nation address, President Zuma stated that 'teachers should be in school, in class, on time, teaching, with no neglect of duty and no abuse of pupils'. That he felt it necessary to make such a statement is an indictment of the quantity and quality of teaching taking place in the country, where up to "80% of schools are dysfunctional, especially in terms of the poor outcomes produced".[26] Research has found that teachers commonly do not complete the curriculum, teach at too slow a pace, make insufficient cognitive demands of learners, do not develop concepts, set insufficient written work and provide few opportunities to read;[27] many teachers often come late to school, leave early, spend only 46% of their time teaching each week and hardly teach at all on Fridays;[28] they also seldom explain or provide feedback on homework assignments.[29] According to one estimate, if only the problem of late-coming amongst teachers was eliminated, the achievement scores of learners could increase by as much as 15% across the whole system.[30]

Future prospects

Education is the cornerstone of social development, and addressing the poor quality of teaching and the other challenges of teacher development must take an appropriately society-wide form. It is not the purpose of this paper to attempt such an all-encompassing analysis, but government's prioritisation of education (together with health) over the next five years offers an indication that, at least at the highest levels, resources are being mobilised to address the acknowledged failings of the system. The task at hand, however, is to ensure that the challenges of teacher education and development are addressed at all levels.

Minister of Finance Pravin Gordhan has already alluded to the need for "better coordination and alignment between national policy imperatives and provincial budgets", by calling for "a mechanism that balances the constitutional responsibility of provinces to determine their budgets with the constitutional entitlement of citizens to education and health services".[31] More specifically, enhanced coordination and more efficient utilisation of available funding are in the offing in the form of the proposed "new, strengthened, integrated plan for teacher education and development in South Africa".[32] This plan, avowedly long-term (20-30 years) and to this extent more realistic than many similar plans produced by government departments in the recent past, intends to strengthen the capacity of universities to train more and better teachers, and to identify and address practising teachers' specific developmental needs. Also mooted as part of this plan are a National Centre for

Professional Development and provincial- and district-level teacher development centres, as well as 'professional practice schools' to enhance the skills of student and newly-qualified teachers and 'teaching schools' (attached to universities) which can function in much the same way as teaching hospitals. Recruitment is to be targeted by greatly increasing the number of bursaries available through the Funza Lushaka Bursary Scheme, and also by expanding the number of teaching subjects for which these bursaries will be provided, so that not only will more Mathematics and Science teachers be produced but also (almost equally as scarce) Arts and Culture and History teachers.[33]

President Zuma stated that 'teachers should be in school, in class, on time, teaching, with no neglect of duty and no abuse of pupils'. That he felt it necessary to make such a statement is an indictment of the quantity and quality of teaching taking place in the country, where up to "80% of schools are dysfunctional, especially in terms of the poor outcomes produced".

In addition, the involvement of parents in educational affairs and especially in monitoring the quality of teaching must be encouraged and further supported. Parental involvement in their children's education has been enshrined in legislation like the South African Schools Act, which gives parents majority representation on School Governing Bodies (SGBs). However, given high levels of poverty, most SGBs are ill-equipped to fulfil even their basic functions, and many parents' own limited expertise in literacy and numeracy and their lack of time and resources to regularly participate in school functions means that they cannot simply be expected to act as relays in support of government policies or the needs of schools or teachers.[34] Still, it is largely thanks to parents that there is an entrenched culture of school-going in the country, with an almost full (95%) enrolment rate for the compulsory education phase (though the rate drops precipitously thereafter, from Grades 10 to 12). The value implicit in this physical presence of most learners in school should not be underestimated. It is not just government that must take more advantage of this presence, but all stakeholders, including the private sector, which itself could better coordinate and target its often undifferentiated, piecemeal and wasted interventions in education.[35] Above all, improvements in the quality of

teachers and teaching will make it possible to capture and direct the imaginations and aspirations of learners and ultimately overcome the perception, said to be held by almost 10% of learners, that education is useless or uninteresting.[36]

But no matter how essential it is to more fully involve all stakeholders, and notwithstanding how many new or improved coordinating structures, or more efficient distribution and uses of funding, or district support capacity, or quality teacher education programmes, or targeted bursaries, are provided (without denying the need for all these elements), the onus will always be on teachers, whether individually or in groups (such as the subject-specific communities of practice also proposed in government's new plan), to enhance the import and impact of their own teaching. The greatest challenge is thus to ensure that the greatest educational resource, teachers themselves, are present and accounted for, fully and properly utilised, and focusing their efforts primarily on teaching for the improvement of learning.

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Reviewing the FET Landscape

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Technical Colleges have existed in South Africa for roughly one hundred years. At the formation of the Union in 1910, the skills needed to shift the economy from mainly farming to mining in the two former republics could no longer be satisfied by assisted immigration. The manufacturing needs and infrastructure requirements of the former two colonies also required a larger skilled workforce. Around 1920, Technical Colleges were established in the major cities of the Union, specifically in Cape Town and Germiston, home of the biggest gold processing plant. The main purpose of those institutions was apprentice training.

The formation of the Republic of South Africa in 1961 led to further emphasis on manufacturing, and subsequently to a new emphasis on technical education. Ten years later the Technical Colleges covered huge areas of technical education which outgrew the capacity of the institutions. The forerunner of the Technikons were formed as Colleges of Advanced Technical Education, covering areas of Higher Education with a technical focus. By 1994 there were about 152 Technical Colleges across South Africa. In that year South Africa embarked on a very thorough reform, or reinvention of the educational sector.

Germany and South Africa revived the dormant bilateral Cultural Agreement with the main focus on Skills Development. 1996 witnessed the signing of the first SDSI (Skills Development Strategic Initiative) between the two countries. The German Agency for Technical Co-operation (GTZ – Gesellschaft für Technische Zusammenarbeit) was appointed the leading partner in the so-called Skills Revolution. The agency had done groundbreaking research on the old South Africa from Harare, Zimbabwe, where most of the German agencies had their offices.

New prominence was given to the Further Education and Training (FET) institutions, where the design and the idea of the FET band was spelled out in clear policy terms.[1] The basic notion of White Paper 4 was to create a multi-faceted FET Band, into which learners could enter after a successful completion of nine years of schooling. There was not a notion that Secondary schooling should be separated from vocational education. Both streams should only be distinguished by different focuses, thus contributing to the economic development of the new South Africa and getting young people into work.

The New South Africa

Technical Colleges did not develop at the speed which was envisaged in the provisions of White Paper 4. They remained the 'Sleeping Beauties' of the Education System, as Prof Kadar Asmal called them in 2000. Focus was rather on the school system and the universities. 'This is possibly the only country in the world that has more university students, at a ratio of 4:1, than college students. Ideally, this situation would be reversed'[2]. This is how the Minister for Higher Education and Training, Dr Blade Nzimande,

described the present situation at the conclusion of the National Skills Summit in September 2010.

This, it seems, is the long term result of the neglect of the Technical Colleges and workplace training.

Around 1994 apprentice training more or less came to a standstill throughout the country. The scheme was said to be biased towards white people and it was accused of being too expensive, too long, and outdated.

Learnerships were to replace the apprentice training scheme. Somehow the clear definition of learnerships contained in White Paper 4, defining them as: 'a mechanism aiming at promoting the level of skills of South Africans through facilitating the linkage between structured learning and work experience in order to obtain a registered qualification that signifies work readiness. It could also be described as a more flexible and modern form of apprenticeship'[3], must have been massively misunderstood in general.

National Qualifications Framework

'No quick fix' was one of the running jokes about the NQF, the National Qualifications Framework. Indeed there was no quick fix for the problems skills training was facing as part of the educational system. So it came to be called 'never quite finished', which really got it right. Professionalisation is a never ending process, well captured in the 'three L's', standing for lifelong learning. The NQF is defined as a social construct under the Stewardship of the South African Qualifications Authority (SAQA)[4].

The NQF nevertheless provides for a highly flexible structure of qualification levels which allow for variable entrance and exit. The NQF covers all possible learning from Grade R or kindergarten or preschool to the degrees above doctorate level. Basically, the NQF provides for three bands and originally eight levels. General Education is represented on the NQF in Level I, Further Education and Training in the so called FET Band (level II/ III/ IV) and in the Higher Education band (levels V, VI, VII and VIII).

Outcomes Based Education looked at the result of learning, refraining from defining how we learn and abstaining from prescribing a learning technology. OBE was the basis of an open process – the results of each and every intervention in the classroom and each and every activity outside are determined.

Occupational/ Vocational Training is situated at the FET band at levels II, III and IV, which run concurrently with the FET band in schooling, leading to the much loved and probably more feared Matriculation Exam.

South Africa was admired around the globe for this bold framework model.

Outcomes Based Education and Training

One of the greatest myths developed around the OBE principles was the view that OBE would abolish teaching. The concept was that learners would have to reconstruct the knowledge items by themselves and do so mainly in group work. This created havoc in classrooms across the country, no matter whether in schools or Technical Colleges.

Outcomes Based Education looked at the result of learning, refraining from defining how we learn and abstaining from prescribing a learning technology. OBE was the basis of an open process – the results of each and every intervention in the classroom and each and every activity outside are determined. The only 'artistic' exercise the teacher, now

called somewhat unfortunately a facilitator, was supposed to undertake, was to think back from on how to achieve a planned result.

The result was not supposed to be an alien entity but rather the result of a learning process which needs to be demonstrated. While there might be some difficulties in the proper demonstration if you were required to prescribe the result of the interpretation of a poem or a philosophical thought, in Vocational Education or occupational training, the concept aligns itself more or less automatically with production phases or sequences of installation or processing. Every stage is prescribed by quality control mechanisms or production requirements. It is very difficult to understand why OBE and OBE Training was seen as a major threat at Technical Colleges. One is inclined to suspect that those in resistance are not absolutely certain of their facts.

The rift between the so called Learnership Units and the Department of Education Departments, notably the new National Curriculum Vocational sections has never been closed. Within the college sector there has always been a drive towards a prescribed curriculum, prescribed tests and memoranda.

Unit standards are developed by Standard Generating Bodies (SGB) and are managed by SAQA. They are a comprehensive source of information about wheeling and dealing in the sectors, industries and administrations. They could be seen, as Eric Hallendorf[5], one of the pioneers of the Unit Standard system, argued, as the smallest qualifications for a trade, profession or craft.

But within the Technical Colleges, the United Standard system has never really taken root. The rift between the so called Learnership Units and the Department of Education Departments, notably the new National Curriculum Vocational sections has never been closed. Within the college sector there has always been a drive towards a prescribed curriculum, prescribed tests and memoranda. The root learning philosophy in Skills Training seems to be deep seated.

This tendency seems to correspond with the notion that occupational/vocational skills acquisition is basically very simple. It is a mimicry of what an artisan does, and it

needs to be repeated over and again and reinforced by the proverbial 'sequential spanking'.

One may speculate, but there seems to be nostalgia for the old apprentice system. It seems that this has more to do with a romantic image of the honest artisan than reality; an illusion of harmony with nature and society.

SETAs

Sector Education and Training Authorities (SETAs) were defined by the Skills Development Act. They were to replace the Industry Training Boards and various other bodies which had developed over time, and would often hold conflicting views on skills levels, qualifications and training methods.

Law makers did not give the SETAs much to chew on, and then left the new bodies to invent themselves. Some were successful, most were not.

The SETAs task is to regulate training and education in their sectors, including quality assurance and funding of training. They are also required to collect data for the Sectors Skills Plans, to be submitted annually.

Every enterprise in a sector is a member of a SETA. This resembles the German model of Chambers of Commerce and Industry and the Chambers of Crafts where they are the keepers of the Crafts Roll (Handwerksrolle), and are the sovereign training authority. They are also the guardians of the training contracts. This also applies to the SETAs but they are national entities formed to ensure that the same standards are applied throughout South Africa.

Learnerships

Learnerships are the main vehicle of the Skills Development Act and it was intended that they would replace all other forms of training. Learnerships are based on a contract which includes an employment contract to which there are three parties; the learner, the company and the educational institution.

German Dual System as Reference

Here one finds a similarity to the German Dual System of vocational/occupational training, which refers to the integration of two aspects of learning and training. One is the workplace and the other is the Vocational School. The equivalent of what used to be called the Trade Theory in South Africa is taught, as well as the basics and practical implementation of a chosen trade or craft. The workplace is obliged to provide practical training and work experience.

The German model requires a training contract as a starting point for vocational/ occupational training. In the course of this apprenticeship training, the company is obliged by law, to release the trainee on a weekly basis to attend classes at the vocational school. The learner moves between the two areas of training, hence the term Dual System.

The success of the Dual System is due mainly to the fact, that the majority of German companies, including the SMME's do continuous training. There are variations in intake levels for various reasons, but generally there are plenty of opportunities for school leavers to find a company willing to employ apprentices, and regional chambers of commerce run programmes to assist both school leavers and companies. Another factor is the continuity of training. Most enterprises have apprentices at all levels, making it an integrated part of their daily operations.

Enterprises do not necessarily need to be operated by a Master Artisan and only a few dangerous trades are still required to work under the auspices of such a Master Artisan. Employing apprentices does however requires the Trainer License, which is part of the Master Artisan qualification, but can be acquired separately.

Statistics show that the majority of apprentices remain with the enterprise where they trained for some time after obtaining their qualification. Similar results can be found amongst participants in various Learnership Projects. The South African training system is working, but unfortunately not to the extent needed to effectively bridge the skills gap.

A major obstacle in closing the skills gap in South Africa is the reluctance of enterprises to train which they seem to consider as someone else's responsibility. This holds true particularly in the SMME sector, where one often encounters the view that training is costly, burdened by time consuming bureaucratic procedures and regulated in a system which no one really understands. Accreditation is another cumbersome process which inhibits enterprises from training. The Skills Levy, which amounts to 1% of a company's net payroll above R500 000 per annum, is seen to be just another tax.

It is remarkable that up to 70% of jobs in developed economies are provided by SMME's and not by large companies. Training is not just about becoming skilled and qualified, it is also a very important phase in a person's life providing an entrance into the world of work. Training offers an opportunity to get used to a corporate environment and integrating into it. This means being offered an opportunity to build networks, form connections and obtain knowledge of the structure of an industry sector. Being trained at an institution does not provide this intensive contact with a universe of work. It is also a fact that we spend most of our adult life and the most valuable time at work.

Workplace training provides much more than a formal qualification. Statistics show that the majority of apprentices remain with the enterprise where they trained for some time after obtaining their qualification. Similar results can be found amongst participants in various Learnership Projects. The South African training system is working, but unfortunately not to the extent needed to effectively bridge the skills gap.

Skills Crisis

The skills crisis manifested itself clearly during the growth period of the South African economy in the final years of the last millennium, when serious skills shortages developed. The construction industry heavily impacted where, for example, the planning of the GAUTRAIN Project revealed the need to import hundreds of qualified welders as they were not available in South Africa.

Motor manufactures experienced booming production and were desperately short of qualified labour. Previously, semi skilled people were employed on assembly lines, but modern quality requirements no longer allow for this.

SETA Criticism

Soon the culprits were identified: SETAs, who were reprimanded in the media for not delivering their targets. Although there were irregularities in finances and structures in general, the system has taken roots and is working.

Colleges were affected by the SETA criticism insofar as the relationship between the Colleges and the SETAs were always a bit uncertain. Colleges, with poor educational reputations were accepted as service providers. The business world saw them as utterly useless.

The fact that SETAs fell under the jurisdiction of the Department of Labour and Colleges under the Department

of Education made for difficult communication. In the colleges two funding systems existed side by side: i.e.: labour and education as labour provided per capita fees for learnerships and education financed the colleges per enrolment in NATED (National Education Department for Curriculum Development) and other courses made for considerable conflict. Who was to benefit from these investments? Were the training workshops to be used by college students during regular hours and by learners after hours? Could the equipment donated by a company for a learnership programme also be used by college students, who were paying a fee to the college and for which the colleges are paid by the state according to a programme funding formula?

… the fact that South Africa has an inverse college university ratio whereas globally around 70% of matriculants attended colleges and 30% university, South Africa has only 30% attending colleges.

NATED, Antiquated Programmes?

The college sector was not able to close the skills gap. A number of colleges made a name for themselves as providers of learnership programmes however, and others started learnerships programmes. In doing so they ensured that all required criteria were adhered to, such as accreditation, both of the college and the workplace. Colleges managed to remove the bureaucratic administration of learnerships. It was a running joke amongst college administrators that learnerships must have been invented by paper mills to secure permanent profits as learnerships require considerable documentation covering participation, assessment, registration and portfolios.

In parallel, colleges were offering the NATED 190 and 191 courses, from levels 1 to 6. These are not to confused with the NQF levels. NATED is much older than the NQF. NATED stands for National Education Department for curriculum development was the task of the national Education Minister. The N – courses are occupational orientated and the successful completion of the N 2 remains the entrance requirement for apprentices. Initially the learnership system was supposed to replace the apprenticeship format by the year 2000, but did not happen. Colleges went on to offer 6 month long N courses and earned fees from them. During the reform

of the vocational/ occupational training system the N course was said to be outdated, irrelevant and due for replacement.

Intake of apprentices came to a virtual standstill during the formation of the new South Africa, and with the restructuring of the training and education landscape, did not increase significantly. This may also have contributed to the skills shortage in following years. Also the fact that South Africa has an inverse college university ratio whereas globally around 70% of matriculants attended colleges and 30% university, South Africa has only 30% attending colleges.

The skills shortage could not be solved by the learnership system and there was demand for NATED courses to be reinstated, including apprenticeships.[6] The colleges quite happily obliged as N-Courses were well tested. The only set-back that seemingly was forgotten entirely was the outdated redundancy of the courses.

The latest move is a continuation of the N Courses as N 2 is still a legal prerequisite for signing an apprentice contract.

ASGISA/ JIPSA[7]

The skills shortage captured in numerous SETA lists of 'scarce skills' brought the government into action. Under the auspices of the Deputy President, ASGISA and JIPSA were introduced. In 2004 the Accelerated and Shared Growth-South Africa[8] (ASGISA) programme was initiated to address the need for economic growth. Various initiatives, such as the UMSOVUMBO Youth fund were strongly supported in the efforts to get more unemployed youth into jobs. The National Skills Development Strategy was developed and its outcomes defined.

A new vehicle, the Joint Initiative for Priority Skills Acquisition (JIPSA) under the auspices of the Deputy President of South Africa, sought to actively address the skills shortage and bring young people into training and jobs. The colleges were mostly unaffected by these initiatives.

National Curriculum Vocational - Education

The development and introduction of the National Curriculum Vocational (NCV) by the national Department of Education (DoE) could be seen as an answer to the skills shortage, the SETA criticism, as a reaction to the ASGISA/ JIPSA initiative and the old

longstanding complaints about the N-courses.

The programme covers 14 subjects[9], ranging from tourism to engineering, and agriculture to mechatronics.

The NCV is a three year programme set at NQF levels 2 to 4. The original plan was to offer an alternative route to the FET (Further Education and Training) Band at school, where matriculation could be obtained.

NQF Review

The National Qualification Framework has been reviewed several times and the first report on the NQF criticised the quality assurance system. The QA has several institutions: UMALUSI is in charge of the schooling sector, and College delivery falls under the jurisdiction of DoE. In the FET Band the QA resides with the Education and Training Quality Assurance desks of the SETAs, and the Council for Higher Education oversees the tertiary bands of the NQF, formerly levels 5 to 8 and now levels 5 to 10, since the NQF was extended from 8 to 10 levels.

In an early analysis it was pointed out that there were too many QA agencies involved, particularly in the occupational FET band. It was suggested that three band related QA bodies should be established, namely for General Education (GE, NQF level 1), for Further Education and Training (FET, NQF Level 2 to 4) and the Higher Education (HE, level 5 to 8 [10, respectively]) and that those bodies must be established as bodies of trust. Which means, that their decisions would be valid and final and could only be challenged in a court of law.[10]

The last NQF review finally got there and the Skills Development Amendment Act (2008)[11] suggests the inception not of band QA's but of sectors. UMALUSI remains QA for the schooling sector, HE for higher Education and for the occupational FET band the Quality Council for Trades and Occupations is to be established and is designed to replace the ETQA's of the SETA's.

OFO

The Skills Development Amendment Act is the Department of Labour's (DoL) answer to the skills shortage, by strengthening the occupational character of training. For instance, the removal of the so-called fundamentals from NQF qualifications and its replacement by a prescribed module fundamental learning is a clear indicator of the attempt to eliminate the educational parts of occupational training, rather concentrating on work skills for work.

The Organisational Frame Work Occupations (OFO) is designed to simplify the myriad of qualifications kept under the guardianship of SAQA, rendering NQF qualifications administration a daunting task. The OFO does group occupational qualifications in so called families, defined by common procedures and/ or products, then differentiates in branches and after that in specific occupations.

The OFO could serve as a vehicle to integrate the NCV subjects, which are defined as broad occupational by directed training programmes and NQF qualifications.

Sub NQF's

The NQF survived the review to become an overarching structure supported by three distinct sub-frameworks: Basic Education, the Occupational and the framework for Higher Education. They all relate to the NQF but make it clear that job-related training is to move into its own domain under the jurisdiction of the DoL, whilst the two other systems remain under DoE.

The new Department of Higher Education and Training

After the 2008 elections the Zuma administration announced the creation of one Department of Basic Education and one for Higher Education and Training. Since school results are steadily deteriorating, interventions need to be intensified; the split of the former Department of Education might be a good idea. To this end the newly created Department of Higher Education and Training under Dr Blade Nzimande will radically change the landscape of the college sector.

Prof Mary Metcalf, former Director General of Department of Higher Education and Training, defined the task of the new department as providing for a post school education system. One should note that there is no longer a post Matric system, but a post school system is envisaged to address the fact that the schooling system loses about one third of its entrants before they reach Matric.

One of the main objectives of DoHET is to strengthen the College System. Skills Development now resides under one roof. The Learnership System and SETAs migrated from DoL to the new Department. From DoE came the FET Colleges desk, and with it the responsibility for the NCV; also the FET Colleges are supposed to be brought from the jurisdiction of the provincial governments under the responsibility of the DoHET. An amendment to the constitution is required to achieve this.

In the meantime a protocol has been signed between DoHET and the provincial MEC's of Education for an interim solution.

NCV revision – Some concluding remarks

Unfortunately NQF level 1, which represents General Education over nine years, does not have a distinct exit exam which could serve as an equivalent to the UK's O-level, the first valid school leaving certificate. With such a qualification, one's choice either to continue schooling to Matric or to move into occupational training/ vocational education would not so much be based on the notion of not being academically inclined, but on a positive decision.

It is rather sad to note that the majority of learners in the college sector start on a rather negative note; either for not having obtained Matric or for being rejected by institutions of Higher Learning.

The NCV programme needs thorough revision. The design, as a hybrid between the rather rigid school programme and outcomes based learnership needs to be sorted out. Assessments need to be reduced and the testing system simplified. A further round of consultation with industry is needed and consideration should be given to multiple entry points, instead of a prescribed three year programme.

The alignment to the OFO could serve as a starting point to make the FET Colleges across South Africa the vocational schooling part of a unified occupational/ vocational training system that would prepare learners for the workplace.

Enterprises need to accept more learners into learning/ training programmes, as the idea of a Dual System rests on the twin pillars of training and education: the workplace and the provider.

It seems that the skills revolution is turning full circle. With the DoHET creating an education network for post school, the notion of White Paper 4 of designing a vibrant FET band has been revitalised. Recent developments such as the signing of a FET SETA agreement in the Western Cape, both national summits on FET and Skills the numerous declarations by the Minister for Higher Education and Training putting back emphasis on the FET band now under his jurisdiction point to new energy in terms of the National Skills Development Strategy. What is lost however, is the notion of the flexible actively integrated FET band, since schools reside within the Department of Basic Education and Skills, Vocational or Occupational Education and Training, whatever one likes to call it, reside with the new Department.

With the establishment of the Quality Council of Trades and Occupations the idea of a training pipeline is taking shape. This describes the various ways of connecting basic education with all possibilities of the FET and HE bands. In so doing there is a good chance that White Paper 4 will achieve what it has been set out to do.

NOTES
1   EDUCATION WHITE PAPER 4- A Programme for the Transformation of Further Education and Training, Government Gazette, vol. 399 PRETORIA, 25 SEPTEMBER 1998 No. 19281
2   The Skills Portal [info@skillsportal.ccsend.com] 01/10/10
3   See White Paper 4, p. 50
4   It is still worth the while to go to the SAQA webpage: www.saqa.org and have a look at the short overview of the development and the brief of SAQA.
5   Founder Member of The Learning Network,
6   For example Dr Ewald Wessels at the occasion of the CCC Conference 2008 in Tygerberg
7   For a short overview see: http://www.info.gov.za/speeches/briefings/asgibackground.pdf
8   See: Media Briefing by Deputy President Phumzile Mlambo-Ngcuka, 6 February 2006, BACKGROUND DOCUMENT, A CATALYST FOR Accelerated and Shared Growth-South Africa (ASGISA)
9   Civil Engineering and Building Construction/ Education and Development/ Electrical Infrastructure Construction/ Engineering and Related Design Finance/ Economics and Accounting/ Fundamentals/ Hospitality/ Information Technology and Computer Science/ Management/ Marketing/ Mechatronics/ Office Administration/ Primary Agriculture/ Safety in Society/ Tourism Source: http://www.thutong.doe.gov.za
10   Reply to the first NQF review
11   See Skills Development Amendement Act [Act No 37, 2008]

RESOURCES:
An Interdependent National Qualifications Framework System, Consultative Document, Pretoria, Department of Education/ Department of Labour, July 2003.
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Thutong – National Education Portal URL: http://www.thutong.doe.gov.za

An overview of University Education in South Africa Today[1]

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Recent developments in the South African polity have opened up space to re-imagine a higher education sector that is mindful of the building blocks of a solid post-school education system ensuring that there is sufficient differentiation and articulation. The South African economy is the biggest economy on the African continent and contributes 25% to the total GDP on the continent. Research from UNESCO indicates that the wealth of nations and universities plays a determining role in the quality and centrality of a university or academic system[2]. Universities have a critical role to play in contributing to the development of the state and the argument put forward by the Council on Higher Education (CHE) (2000) that "the overall well-being of nations is vitally dependent on the contributions of higher education to the social, cultural, political and economic development of its citizens" is appropriate today, ten years later. This article focuses on enrolment challenges in particular and the present context.

What is Higher Education?

In 2009, the Department of Higher Education and Training (DHET) was established, focusing on the post-school system and the institutions that form part of this complex terrain. The universities and higher education institutions form part of this wider system. In terms of the Higher Education Amendment Act, 2008 (amending the Higher Education Act, Act 101 of 1997), 'higher education' means all learning programmes leading to a qualification that meets the requirements of the Higher Education Qualifications Framework (HEQF) (section 1(b)). The policy instrument for defining higher education is therefore the HEQF. In terms of the HEQF, the higher education band of qualifications starts on level 5 of the National Qualifications Framework (NQF). What this translates to is that any institution that offers qualifications at level 5 would be considered a higher education institution. Higher education is therefore not equivalent to university education. University education is part of higher education, but higher education is inclusive of other institutions such as nursing and agricultural colleges, and any other type of provider active in the offering of qualifications from NQF level 5 and above.

Institutions differ according to the amount and quality of research, number of academic disciplines, study programmes, missions, styles of teaching, and training for different careers[3]. Differentiation is an asset as it opens up opportunities to develop closer relationships between higher education and the rest of the world such as a greater responsiveness to labour market needs, enhancing social and geographical access to higher education, providing high level occupational preparation in more applied and

less theoretical ways, as well as creating space for the growing diversity of qualifications and expectations of school leavers. Broad diversity of higher education contributes to broad access[4]. A differentiated system is critical in terms of a multiplicity of programmes, learning pathways and varied centres of excellence and strength.

Why would learners want to enter Higher Education?

From a Human Sciences Research Council (HSRC) study[5], it would seem that factors influencing a decision to proceed to higher education include enhancing employability, an intrinsic interest in a field of study, perceptions that higher education will lead to higher incomes, being spurred on by family to undertake higher education study, being offered a bursary or a scholarship, qualifying to finance study through the National Student Financial Aid Scheme (NSFAS), or being able to finance study through a bank loan. Recently, the Ministerial Committee reviewing the NSFAS highlighted the inter-relatedness of access-affordability and success.

There is critical consensus that the South African higher education sector is differentiated and uneven. Aspects of the unevenness relate to historical legacies regarding the context of institutions, different funding regimes and the purposes ascribed to our institutions.

The Organisation for Economic Co-operation and Development (OECD)6 identified a number of critical elements that would have a direct impact on the equity agenda in terms of participation in higher education. Amongst these are the need for career information and guidance at the pre-tertiary level; integration and harmonisation of planning between the secondary and tertiary education systems; available articulation opportunities for higher education studies from any track (that is at exit or senior levels) in the Further Education and Training (FET) sector; diversifying the types of higher education to allow for varied sets of learners entering higher education; positive discrimination policies for particular groups whose prior educational disadvantage is well identified; making available incentives for Higher Education Institutions to broaden participation through the provision of extra support for students emanating from disadvantaged backgrounds; the affordability of higher education; and institutional admission management processes. At the recent Summit on Higher Education, the importance of career guidance and counselling was stressed as well as the required scaffolding of an academic nature for the student entering the sector.

What instruments are used to steer the Higher Education System?

Planning, quality and funding presents a triadic challenge to policy makers as the synchronisation of all three is a pre-requisite to actually steer the system – the notion of steering is used but can be problematised as follows:

There is critical consensus that the South African higher education sector is differentiated and uneven. Aspects of the unevenness relate to historical legacies regarding the context of institutions, different funding regimes and the purposes ascribed to our institutions. An evaluation of the three mechanisms signals that the desired synchronicity was not achieved fully and that the last sixteen years have seen limited progress. The changing of political administrations results in shifts in the interpretation and/or emphasis in policy. This has been the focus of the present DHET in working towards an inter-weaving of the planning, quality and funding and exploring the options that could be pursued.

What is the link between Universities and Capacity?

Universities in South Africa are structured to offer:
- Traditional forms of education (philosophers, sociologists, historians, scientists, etc)

- Vocational education and training (HR practitioners, technologists, technicians, etc)
- Professional education (teachers, dentists, engineers, etc)

Morgan (2006) identifies capacity as an emergent combination of attributes that enables a human system to create developmental values. The ability for action, or capacity, is informed by core capabilities including:

- the capability to act (degree to which decisions are implemented, degree and use of operational autonomy, action orientation within the system, integrity of the organisation – leadership and staff, effective human, intellectual and financial resource mobilisation);
- the capability to generate results (strengthening of public institutions and services, generating substantive outcomes, improving sustainability of results);
- the capability to relate (degree of legitimacy amongst supporters and stakeholders, ability to protect the core interests of the system, operational autonomy);
- the capability to adapt and self-renew (adaptive management culture, ability, opportunity and discipline to learn, confidence to change, ability to balance stability and change); and
- the capability to achieve coherence (integrating structures inside the system, a well-defined set of simple rules that govern operations, a leadership intent on achieving coherence, a shared vision of the intent of the organisation).

Universities are strategic assets within the notion of the developmental state. The value that the state places on university education is reflected through its policy choices and fiscal priorities.

Given the history of South Africa, it should come as no surprise that the policy emphasis regarding universities was largely around issues of access and equity. Increasingly over the last two years, the need for deepened discussions on articulation, coherence and differentiation have featured as critical to the broader issues of access and equity. There has been a simultaneous a drive for improvement and strengthening of our research outputs and development of the next generation of academics and researchers.

Policy Context Shaped Around Access and Equity: 1994 - 2008

- *National Commission for Higher Education (NCHE) (1996):* The NCHE Report recommended the establishment of a single co-ordinated higher education system as a first priority. This was to address the fragmented policies and practices of Apartheid where universities were planned according to the colour line. The Report made the case for increased participation, also known as massification, and presented this strategy as a means through which the tension between equity and development could be negotiated. According to the Report, projections for participation in higher education of the relevant age group (18-24 year-olds) should have been 30% by 2005. The actual participation rate in higher education in 2006 was 16%. Between 1995, when the participation rate was 14%, and 2006, there has been a mere 2% increase in enrolments in higher education.

- *Education White Paper 3: A Programme for the Transformation of Higher Education (1997):* The White Paper took on board the NCHE Report's recommendation for increased and broadened participation. This principle of massification was later dropped in favour of planned enrolment. The White Paper placed emphasis on the need for the historically steered pattern of fragmentation, inequality and inefficiency to be addressed through successful policy implementation. Policy was to be guided by principles of increased access for designated groups (Black, women, disabled and

mature students), and generate new curricula and flexible models of learning and teaching, including modes of delivery, to accommodate a larger and more diverse student population.

■ *National Plan for Higher Education (NPHE) (2001):* The NPHE ended a four-year vacuum of the incremental approach to policy execution. It identified the danger of some higher education institutions, particularly the historically advantaged and private provider institutions seizing market opportunities in distance and franchised education to the detriment of the historically Black universities. A major proposal emanating from the NPHE was a rejection of the NCHE's method of differentiation through institutional types. It instead proposed a differentiation regime based on institutional mission and programme mix, which was subsequently introduced through instruments such as the Programme and Qualification Mix, Student Enrolment Planning and, Institutional Operational Plans. The NPHE signalled the link between participation and graduation and set goals for the participation ratio between broad fields of study: Humanities and the Social Sciences; Business, Commerce and Economic Sciences and; Science, Engineering and Technology at a ratio of 40:30:30 (for performance in meeting these goals, see "Vision for Access" below).
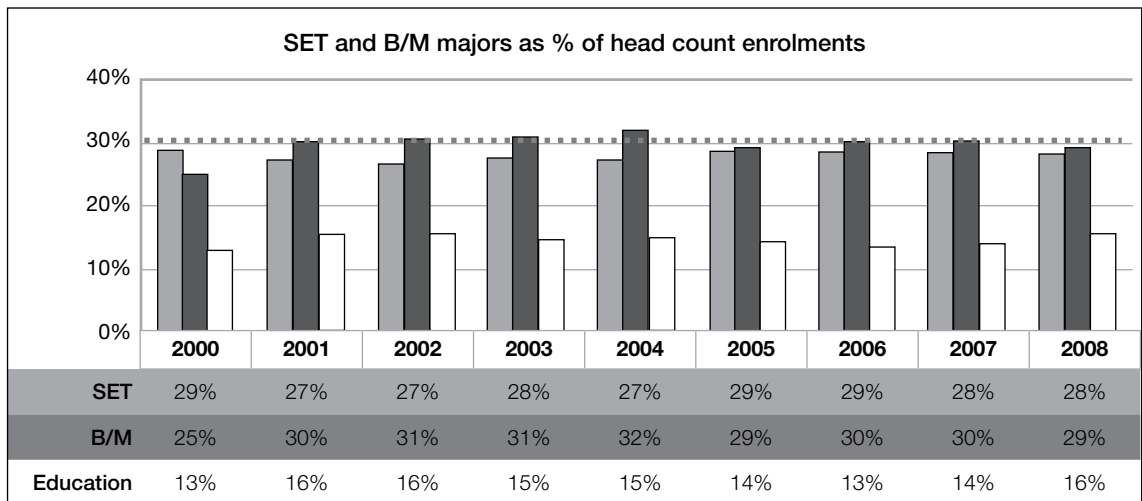

SET and B/M majors as % of head count enrolments

	2000	2001	2002	2003	2004	2005	2006	2007	2008
SET	29%	27%	27%	28%	27%	29%	29%	28%	28%
B/M	25%	30%	31%	31%	32%	29%	30%	30%	29%
Education	13%	16%	16%	15%	15%	14%	13%	14%	16%

Table 1: Percentages of SET, Business and Management and Education. Humanities constitute the balance of enrolments.

■ *Minimum Admission Requirements for Entry into a Higher Certificate, Diploma or Bachelor Degree Studies with the National Senior Certificate (2005):* The National Senior Certificate (NSC) is the culmination of the National Curriculum Statement (NCS), an outcomes-based approach to education adopted by the government in the 1990's. The modality adopted for implementing the NCS was premised on a staggered approach for the different school grades (for example grades 1 and 4, 2 and 5, etcetera) with the NSC replacing the Senior Certificate (colloquially referred to as the Matric Certificate) in 2007. The policy sets the threshold qualifying requirements to holders of the NSC to enrol for an academic programme of study at a higher education institution. These requirements are absolute minima with a proviso in the policy that institutional criteria for admission would determine eligibility for registration, in the final analysis, to ensure alignment with Section 37 of the Higher Education Act of 1997.

- *Higher Education Qualifications Framework (2007):* The HEQF is a sub-framework that is nested in the National Qualifications Framework and guides the standards of qualifications that are offered in the higher education band (levels five to ten). The framework determines the level and level descriptors of qualifications, the types and naming of qualifications, qualification descriptors, admission to higher education as well as progression or articulation within the framework.

- *Minimum Admission Requirements for Entry into a Higher Certificate, Diploma or Bachelor Degree Studies with the National Certificate Vocation at Level 4 of the National Qualifications Framework (2009):* NATED qualifications (N1-N6) in the FET College sector is being replaced by a new qualification, the National Certificate Vocation (NCV). The first NCV was offered in 2007 at NQF Level 2. The rationale for this change in qualification type is to facilitate policy alignment in the FET sector (college and schooling). The NCV at NQF level 4 is an exit qualification in the FET Band of the NQF. As an exit qualification at one level, it is imperative that entry requirements to the next level be clear and without ambiguity in order to facilitate seamless articulation and progression within the NQF. By doing so, opportunities for those who desire to enter higher education are broadened.

The sheer volume of access-related policies has led to a number of unintended or unanticipated consequences. The most significant consequence relates to the frustrations of not having considerably increased the participation in higher education despite the investments made in higher education.

Funding of Higher Education

On average, 40% of income is from state subsidies and 28% is from student fees. Students pay fees for higher education in South Africa, and fee increases continue to be contentious and escalating. Students have protested every year since 2004 over fee increases, financial exclusions and lack of adequate financial assistance. Universities increasingly rely on other sources of funding and on average 33% of their income is from other sources.

Students have protested every year since 2004 over fee increases, financial exclusions and lack of adequate financial assistance. Universities increasingly rely on other sources of funding and on average 33% of their income is from other sources.

But the capacity of institutions to generate other funding streams differs. As a result, the proportion of funds coming from other sources differs across institutional types with Universities of Technology and Historically Disadvantaged Universities most dependent on state funding[7]. Enrolment targets have to be aligned to available resources to enable the university sector to deliver its teaching and research mandate. There is deep awareness that funding has not kept pace with growth and escalating costs.

In order to support national priorities as well as improve the efficiency of the sector, it is imperative that any future growth projection for the University sector has to be supported by additional funding in prioritised areas. An area which needs specific attention is the development of the historically disadvantaged institutions as well as merged institutions with historically disadvantaged campuses. It needs to be ensured that they are capacitated to deliver the same quality teaching and learning experience to their students as the better performing and better equipped higher education institutions.

What about the next few Years?

The current administration has introduced the system of Performance Monitoring and Evaluation (PME) where each Cabinet Minister enters into agreements with the Presidency committing her or himself to meeting specified targets. In regard to

developing the PME for the Minister for Higher Education and Training, the targets as been problematised as:

- Universities not producing enough appropriately skilled and qualified people in disciplines central to social and economic development
- Data indicates that graduation rates are a key problem to achieving targets
- Institutions have limited capacity to absorb more students and to respond to their needs
- The number of people involved in research, knowledge production and innovation is low
- Insufficient pipeline of young academics and, by implication, new research capacity and productivity

Skill deficits and bottlenecks, especially in priority and scarce skills, continue to contribute to the structural constraints to our growth and development path. A skilled and capable workforce is critical for decent work; an inclusive economy; labour absorption; rural development; the reduction of inequalities, and the need for a more diversified and knowledge intensive economy.

The figure below presents the growth of the university sector between 2005 and 2010 as well as the projected growth for the period 2008-2013. The growth for the period 2005-2010 is 2.8% with a 2.7% growth predicted for 2008-2013. The growth projections are based on current capacity of our institutions.
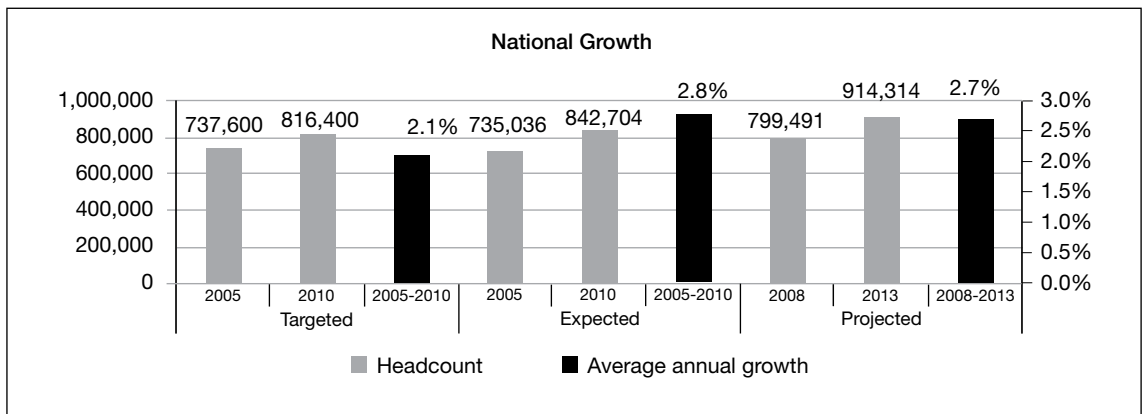

National Growth

Table 2

Our Youth – Deficit or Surplus?

Many South African learners are poorly-prepared to undertake further learning when they leave school and cannot access post-school education and training opportunities. A large number of youths and adults are not in employment, education or training, and have a poor educational foundation. This situation is furthermore exacerbated by the limited capacity of universities to absorb more students or to respond to the educational needs of our young people. The two tables below give an indication of the extent of the problem. Based on current capacity (physical – lecture halls, residences, laboratories; and human – academic teaching staff), our public university system can carry only approximately 914 000 students by 2014. If we wish to grow this to meet the 20% participation rate, then massive monetary and human capital investment is required.

	18	19	20	21	22	23	24	Grand Total
Grade 12/Std 10/NTCIII (without university exemption)	47,447	65,190	89,292	99,797	100,711	96,139	100,080	598,657
Grade 12/Std 10 (with university exemption)	10,226	13,526	14,778	14,259	16,910	13,869	14,766	98,335
Certificate with Std 10/Grade 12	2,732	4,025	6,299	8,157	9,672	8,340	7,811	47,035
Diploma with Std 10/Grade 12	388	1,151	2,464	3,461	6,103	5,733	5,995	25,294
Total	60,793	83,892	112,833	125,674	133,396	124,081	128,652	769,321

Table 3: 2007 Community Survey of 18 – 24 year olds who are not studying or working and who could qualify for university study

Estimated annual outflow from Basic Education

Cannot Enter HE

Full-time candidates writing the NSC exams	
2007	564 381
2008	553 561
2009	552 073

Can Enter HE

Not Successful	
2007	564 381
2008	553 561
2009	552 073

Total Achieved		
2007	368 217	65.2%
2008	344 794	62.2%
2009	344 718	60.6%

1. Re-enter Grade 12
2. Enter FET Colleges
OR
3. Attempt to enter Labour Market

POST SCHOOL SYSTEM

Admission to Degree Study		
2007	85 454	15.1%
2008	106 047	19.1%
2009	109 697	19.9%

Admission to Dip / Cert Studies		
2007	282 763	50.1%
2008	238 747	43.0%
2009	225 021	40.8%

1. Enter FET Colleges
2. Enter Private HE
OR
3. Enter Labour Market

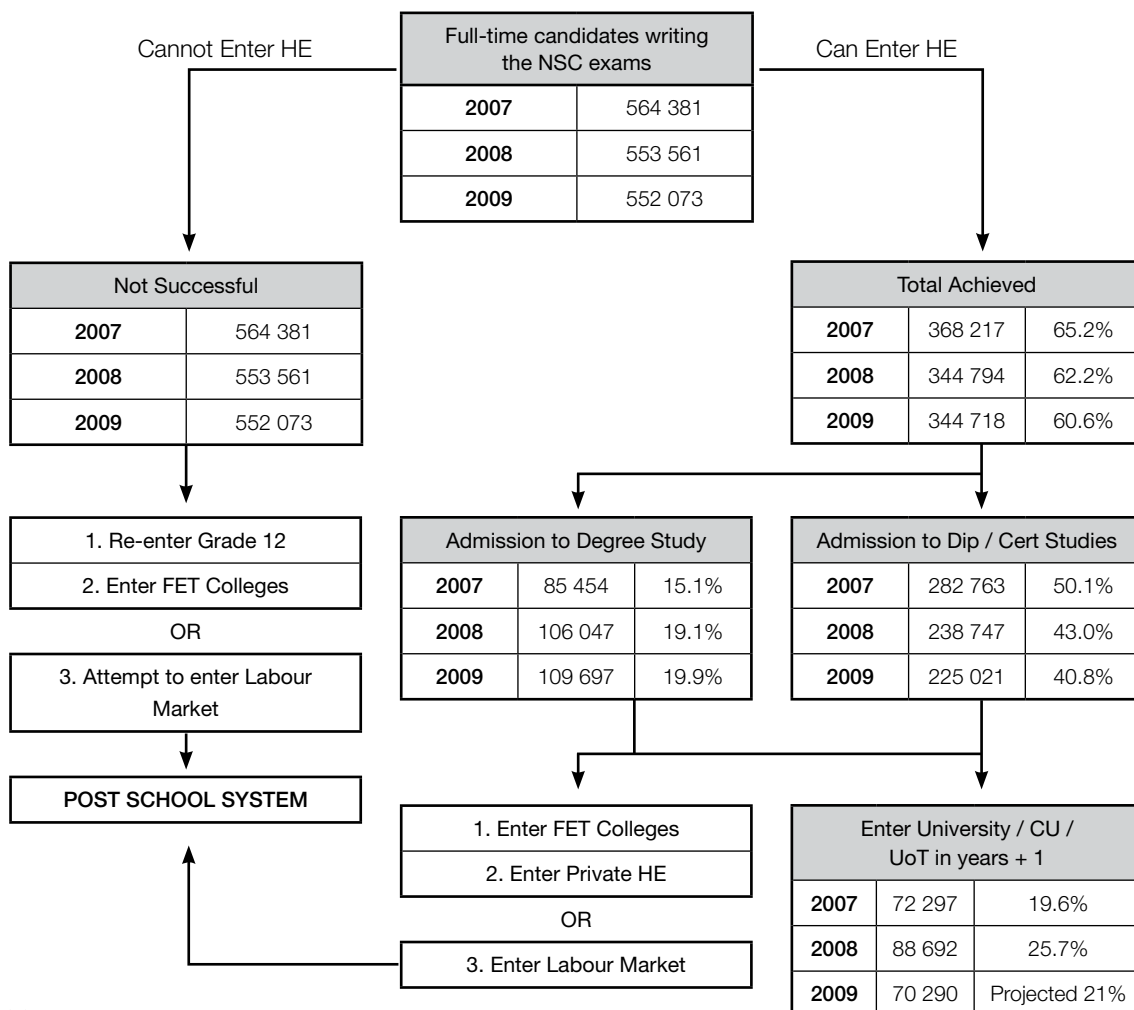| Enter University / CU / UoT in years + 1		
2007	72 297	19.6%
2008	88 692	25.7%
2009	70 290	Projected 21%

Table 4

The big issues to be confronted can be summarised as follows:
- Access and articulation
- Success of students within and on graduating
- Differentiation and diversity
- Accreditation/registration
- Fitness of and for purpose in curriculum and institutional type
- Staffing and infrastructure
- Strategic Partnerships

The declaration at the Higher Education Summit is appended for a quick summation of the key issues as well as a commitment by the Minister, the DHET and key stakeholders and constituencies.

Conclusion

It has been just 18 months since the establishment of the new Department of Higher Education and Training. This DHET brings under one umbrella, not just structurally, but conceptually, skills training, vocational education, adult education and higher education. It is envisaged that the education and training interface will provide an essential strategic lever that will serve as an enabling factor in developing opportunities for widening of access, achievement of equity of access and outcomes, as well as greater coherence in the system. Critical factors such as a limited funding envelope and the need to simultaneously pursue access for the inflows from the school system as well as critical knowledge production will inevitably remain in tension with each other. This is an area which confronts higher education internationally and is not a South African phenomenon. It has prompted and propelled the DHET to navigate this terrain and work towards developing new rules of engagement.

NOTES

1   This article is written in the personal capacities of both authors. All data are from HEMIS DHET.
2   UNESCO, 2009:4
3   Smith, 2000: 178-180
4   Smith, 2000
5   2004, 69
6   2008, 21
7   CHE, 2009:10

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Higher Education Summit Declaration

23rd April 2010

This summit recognises this extraordinary opportunity for a re-examination of our understanding of the post-apartheid South African university 15 years after our democracy; embraces the opportunity to reposition this sector in a reconfigured post-school education and training system to pursue key national development goals; and we commit ourselves to address the challenges raised in the report of the Ministerial committee on discrimination. We re-affirm the fundamental principles of the White Paper in Higher Education adopted in 1997 after extensive and inclusive processes of consultation with the sector:

- Equity and redress
- Democratisation
- Development
- Quality
- Effectiveness and efficiency
- Academic freedom
- Institutional autonomy
- Public accountability

We recognise the challenges of:

- Sustaining responsive and engaged knowledge institutions which are fit for the purpose of transformation and development in South Africa and in particular to respond to regional social and economic needs and HRD.

- Producing socially responsible graduates conscious of their role in contributing to the national development effort and social transformation.

- Developing a well-organised, vibrant research and development system which integrates the research and training capacity of higher education with the needs of industry and of social reconstruction.

- Deepening robust and inclusive democratic processes at system and institutional level.

- Increasing access to, and articulation within, post-school education and training, particularly to the poor.

- Developing a framework for a continuum of institutions which are differentiated in relation to their strengths and purposes and linked to regional/local economic networks; and facilitate portability of students, academics and knowledge across the sector.

- The pressures of commodification and commercialisation in higher education which have privileged business efficiencies over academic concerns.

- The many factors impacting on the quality of the academic project.

- The poor conditions under which many students learn and live.

We affirm:

- Academic freedom and institutional autonomy as necessary freedoms that enable our universities to effectively address the imperatives and developmental challenges of our society. At the same time we recognize that there are duties and responsibilities that inhere in these freedoms: the duties include our commitment to transform our universities so that they become more equitable, inclusive and just.

- The need for strong governance for Universities to be publicly accountable.

- The contribution of this sector to the broad system of education, and its specific contribution to strengthening basic education.

- Our commitment to ongoing and robust engagement.

Way Forward: Key Recommendations

- Establish a permanent Stakeholder Forum. The department must lead a broad consultative process immediately after the summit to define the role and functions of this forum and a process for it to be established.

- Convene an annual summit to review progress in the sector (the sector being accountable to itself). Annual summits should keep institutional progress in relation to the recommendations of the Soudien report on the agenda.

- A working group should be urgently convened to take forward the framework for institutional differentiation developed in the Summit and develop recommendations in consultation with the sector.

- Develop mechanisms to promote student-centeredness and caring universities.

- Develop a charter on learning and teaching.

- Seek a focused recapitalisation of HDIs.

- Strengthen emphasis on post-graduate studies and research.

- Revitalize the academic profession including the development a coordinated plan to increase the number of younger researchers.

- Ensure stronger intra-institutional capacity-building & knowledge sharing in order to foster inter-institutional sectoral solidarity and collaboration.

- Ensure commitment to good corporate governance.

- Address the decent work requirements or academics and support staff.

- A national framework for development of student leadership.

- There is a need to develop programmes aimed at improving opportunities for young African academics particularly women.

- HEI's must contribute to the development of African languages as academic languages, understanding language development play in development and education. This includes the development of African language based post graduate outputs across disciplinary areas.

- We need a curriculum oriented toward social relevance and which supports students to become socially engaged citizens and leaders.

Making South African Higher Education Work: Starting at the beginning

Elizabeth de Kadt spent most of her academic career at the University of Natal, Durban, where she taught German and Linguistics for 25 years. Following on the creation of the University of KwaZulu-Natal, she moved into academic management and spent four years as Executive Director: Access. In 2007 she joined the University of Johannesburg as Executive Director: Academic Development and Support.

In South Africa's quest for development and economic growth, one of the major challenges currently facing us is the very unsatisfactory performance of higher education, here considered especially in terms of graduation rates for primary qualifications. Following on the appearance of the cohort studies of Scott, Yeld and Hendry (2008), we now have clear evidence of the extent to which the sector has been underperforming. To start with, only a low proportion of school–leavers (around 18%) find entry into higher education; and of this low intake, close to 50% drop out without completing their qualification. In addition, both entrance to HE and subsequent performance remain racially skewed, with black African and Coloured students performing far less adequately.[1] When considering Scott et al's findings, we need to bear in mind that these students represent the cream of our country's youth: while some groups may be performing better than others, no single group is performing well.

There is consensus that substantially improved graduate outputs are needed for economic progress and social cohesion. While some progress towards greater equity of intake has been made, equity of outcomes remains a distant goal. It is particularly towards 'improved performance in the black and coloured groups'[2] that we will have to look, if we are to achieve the necessary substantial increase in overall graduate output. Improved performance is a challenge directed not only to individual lecturers, but to the overall management and organisation of tertiary education.

Student 'dropout'

The phenomenon of student 'dropout' is not unique to South Africa; internationally it is widespread and is seen as interfacing with the massification of higher education over the past half-century, through which this public good has become more widely accessible. Tinto, looking back over 40 years of international research, notes that 'our understanding of the experience of students from different backgrounds has been greatly enhanced'[3] and that we now have a much better understanding of how 'a broad array of forces, cultural, economic, social, and institutional shape student retention'.[4] Yet Tinto continues by noting that 'most institutions have not yet been able to translate what we know about student retention into forms of action that have led to substantial gains in student persistence and graduation'[5]; few have been able to move from deepened understanding to the necessary effective action.

In South Africa, our understanding of and approaches to student dropout have also been shaped by our particular historical context. These have evolved through several

> *Undoubtedly, many students who achieve the requisite NSC performance to enter higher education are nevertheless poorly prepared for the ensuing academic demands, and especially for the challenge of studying through the medium of English, which for most is a second or even a third language.*

phases over the past forty years, as the student body on our campuses moved towards racial integration.[6] Initially, black students entering former white universities were simply seen as 'underprepared', and attempts were made to equip them to integrate into the existing university culture. In a subsequent phase, the question emerged as to whether it was not also the universities which were 'underprepared' for the students they were increasingly being required to teach. More recently, Boughey argues, we have entered a third phase characterised by the term 'institutional development', which focuses on the need for 'systemic and institutional efficiency'[7]; the research of Scott *et al* is located within this developmental phase. Undoubtedly, many students who achieve the requisite NSC performance to enter higher education are nevertheless poorly prepared for the ensuing academic demands, and especially for the challenge of studying through the medium of English, which for most is a second or even a third language. These academic challenges are compounded by the broad impact of poverty; the constant struggle by many to fund their studies and the transition from a rural environment to an urban one.[8]

The need for a systemic approach

The role of the universities in addressing these broader socio-educational issues is one of some debate, but there can be no doubt that certain of the factors which impact on student success are indeed within the control of higher education institutions, as Scott *et al* have pointed out: the range of implicated affective factors, including institutional culture and the educative process itself. These thoughts, too, are not new, and draw primarily on what has been learnt from two decades and more of implementing foundational and extended curricula programmes for students who have not achieved the entrance requirements for direct entry into mainstream study. Some of these programmes have been remarkably successful, with 'extended curricula' students out-performing direct entry students once they access mainstream studies. Yet at the same time these programmes have tended to remain on the margins of academia, and have had to battle with perceptions of stigma – even though, as Scott *et al* (2007) have shown, in the considerable majority of cases, qualifying for direct entrance still does not result in earlier graduation. The real significance of Scott *et al's* work, however, lies in the conclusions they have drawn from their incontrovertible data: they conclude that only a systemic approach can succeed in addressing the low graduate output, and they challenge institutions to reconsider the effectiveness of the traditional degree/ diploma framework, and to take in hand the reform of curriculum frameworks. More specifically, they argue for flexibility to be introduced into 'mainstream curriculum frameworks, to allow expressly for 'extended' versions of core programmes, designed to accommodate talented students whose interests are not served by traditional curriculum structures'.[9] In short: what is currently positioned as the 'exception', the various extended curricula programmes, would become the norm, with only exceptionally well-prepared students completing their qualification in a shorter period of time. This, in turn, would allow for curriculum renewal and for curricula which might better accommodate the learning needs and learning approaches of the majority of our students.

This systemic proposal has occasioned much interest and debate across the sector, and it is at sector level that the proposal would need to be taken forward. At the same time, however, the post-school sector is being re-envisioned as an integrated whole, and any proposal for a four year curriculum will need to be considered within this broader

framework, from which additional issues are likely to emerge. Undoubtedly approval and developmental processes will be time-consuming. How, then, can the sector in the meantime begin addressing the challenge of poor success rates, and at the same time prepare itself for the more radical changes proposed by Scott *et al*?

It is widely accepted that the greatest attrition of entering students, both nationally and internationally, takes place during and at the end of first year. Of the 2000 cohort studied by Scott et al, 29% had already left by the end of first year.

First Year as a crucial time of transition

While Scott *et al* make the case for a systemic approach to address these challenges, they also note the crucial need for the continued development of educational expertise in individual institutions, and indeed the potential role of individual institutions, and it is to such initiatives that we now turn. Many committed teaching staff across the country are devoting enormous energy to making a difference in their own classroom, but an institutional approach is needed to achieve critical mass. In the following, this paper will report on a major institution-wide initiative undertaken at the University of Johannesburg (UJ), the introduction of a First Year Experience project (FYE), which seeks, in a multipronged approach, to alleviate the challenges raised by addressing the complex issue of first year attrition.

It is widely accepted that the greatest attrition of entering students, both nationally and internationally, takes place during and at the end of first year. Of the 2000 cohort studied by Scott *et al*, 29% had already left by the end of first year. One of the core reasons is undoubtedly unsatisfactory articulation between school curricula and first year curricula. 'Students from educationally disadvantaged backgrounds have generally not been exposed to key academic approaches and experiences that are taken for granted in traditional higher education programmes'[10], and even for many students who have been successful at school, such a mismatch exists.

The First Year Experience project at the University of Johannesburg

'First Year Experience' (FYE) approaches have been a long-standing tradition in the United States, the United Kingdom and Australia. In South Africa, the

University of Stellenbosch was the first to introduce such a programme, which has now been running for several years, and a national FYE conference at US in 2008 attracted a great deal of interest. At UJ the starting point for this approach to enhancing student success, had been within the Academic Development Centre, where it emerged during 2007 as 'Project Mpumelelo' from years of close familiarity with the learning needs of students. Preparatory work during 2008 focused on extending the interest base across Faculties and Divisions, as from the outset FYE was envisaged as a necessarily institution-wide initiative. Further impetus came from the Stellenbosch FYE conference, but at the same time it was clear that at UJ, as a comprehensive university, an FYE would need to take on its own specific trajectory and character, given the number of students involved, the four campuses, an extremely wide range of qualifications (including diplomas and degrees) and a rather different student intake. At the same time, the emerging FYE was able to build on a broad endorsement of teaching and learning as one of UJ's core functions, which during 2008, saw the development of a Senate-approved UJ Teaching and Learning Strategy, into which FYE was embedded. The FYE project proposal, developed as a team initiative, was finally presented to the University Senate in 2009 and was there fully endorsed, with rollout commencing in January 2010.

From the outset, UJ was well situated and well prepared to develop and roll out a FYE. University staff had long-standing experience in academic and educational development, which had included the rollout of extended curricula programmes for a number of years, and well developed expertise in the core field of academic literacy. It was evident that this type of approach would be of considerable assistance to the majority of students entering UJ. The two-year developmental process of the FYE project was beneficial, in that it allowed a community to emerge, which received growing support from Faculties and Divisions on all campuses. Of major significance, of course, was the full endorsement of the project by the Vice-Chancellor, the DVC Academic, and the nine Executive Deans, which extended to the granting of a new post for an FYE Coordinator at a time of great financial stringency.

UJ's FYE Principles

In its project document, UJ's FYE was conceptualised in terms of underlying principles, as follows:

- The FYE is a holistic approach to the total student experience, and is an initiative of the university.
- The FYE is embedded within the preferred UJ student

experience, which begins prior to an application to UJ and ends with alumni status.

- It is incumbent on the university to ensure that students are provided with enabling learning environments.
- The FYE is not envisaged as simply assisting students to pass, but as enabling as many as possible to achieve their full potential.
- The FYE requires the contribution and support of all sectors of the UJ, of both Faculties and Support Divisions.
- An equitable First Year Experience will be based on the participation of all Faculties in terms of common principles; a common core combined with specific Faculty ethos and needs.
- The FYE is informed by, and grounded in, ongoing developmental and evaluative research.
- The FYE requires commitment from students and support and development by staff.
- The challenge of first year teaching requires special expertise from the academic staff, who must in turn be assisted in meeting these challenges.
- All components of the FYE strive, as far as possible, to be fully integrated.

Project-driven rollout

The first year of rollout was via the following seven projects.

- **The introduction of placement testing.** During 2008 UJ committed itself, on a pilot basis, to the National Benchmark Test (NBT) initiative; students were informed that they should write these tests prior to, or during the registration period. The thinking underpinning the development of the NBTs (an initiative of HESA) is that universities need better to understand the actual performance levels of incoming students in the core fields of academic literacy, quantitative literacy and mathematics (as opposed to their NSC performance, which has been normed), in order to develop properly responsive curricula, and to identify what further assistance students will be likely to need.

  NBT performance will need to become part of a broader research project, which will investigate potential correlations between NBT performance, NSC performance, and subsequent performance at UJ; only on the basis of several years of data will it be possible to understand the extent to which NBT results are able to predict success – at which point consideration can be given to utilising NBT performance, always in conjunction with NSC performance, to select and place students optimally.

- **Orientation**. The brief of the Orientation Committee was, to move from a primarily socially focused Orientation, which was attended by relatively few students, to a more academically focused Orientation, which would seek to begin to introduce students to academic expectations, while still making space for first friendships to be formed, and which would be attended by the majority of students. Given the number of expected entrants (between 11000 – 12000) this was a major logistical challenge. The rollout of Orientation created heightened awareness of the crucial variable of Faculty size: UJ's nine faculties differ greatly in terms of size, ranging from small faculties with perhaps 1500 students, to large faculties with over 10 000 students. While the Orientation run by smaller faculties was generally successful and well attended, it became clear that large faculties (and especially those spread across two or more campuses) would need to revisit their approach and come up with alternative strategies, to ensure that a higher proportion of entrants attended and that rollout is optimal.

  Included within Orientation were two further important issues: students were required to complete a computer literacy assessment (followed by training opportunities for those in need of these), during which they also completed an 'Entering Students Profile' questionnaire. This latter is part of a five-year project, which has sought to develop indicators of likely student success, on the basis of contextual factors such as age on entry, parents' level of education, past study habits, socio-economic status etc.

- **An 'extended Orientation' approach.** Given the considerable quantity of information which students are expected to absorb during Orientation, it was essential to complement this by an 'extended Orientation' approach, which strands and embeds themes from the initial Orientation throughout the first semester. Initial Orientation would therefore focus primarily on the 'where' and 'how' of starting off at University; Extended Orientation would focus on what being a student involves, and on developing the skills required for success. This, in turn, interfaces with good practice academic development, where academic literacy and learning skills are best taught as integrated into mainstream curricula.

  Continued attention will need to be focused on Extended Orientation, as this is the core of FYE; full rollout of Extended Orientation will result, over time, in a review of many first-year curricula, which will

draw on the deeper understanding of entrants obtained through the NBTs and the 'Entering Students Profile' results.

■ **Project Safenet.** Literature on student success regularly notes the need for constant awareness of student performance, so that poorly performing students can be identified at an early stage, well prior to exams, and receive immediate support. However, student performance and assessment of 'risk' is best undertaken across all modules for which students are registered; and this can then be extremely time-consuming. Project Safenet seeks to use UJ information systems for this purpose, with the necessary reports being generated automatically. This has turned out to be an extremely complex undertaking, with repeated unanticipated knock-on effects, but SAFENET will in future be able to generate the necessary reports: an early Faculty-specific report derived from the 'Entering Students Profile' questionnaires; and a report 5-6 weeks into the semester, utilizing the results of the first round of tests. It will then be up to faculties to contact students, either to offer congratulations on good performance, or to call them in for consultation. At the same time, through these processes faculties are likely to become much more aware of modules where performance is generally poor, which will be a reason for further investigation; not only students, but also modules may be 'at risk'.

■ **Faculty tutorial programmes.** During 2009, the UJ Senate also approved a Policy on Tutorials and Tutoring, which has underpinned the rollout of an increasingly extensive tutorial programme in the various faculties. This is all the more needed, in that, due to the very substantial student numbers, much teaching takes place in large classes of up to 600 students. It is essential that these large groups be complemented, where possible, by tutorials conceptualised and delivered as an integral part of the respective module. While cost considerations must limit the availability of tutorials, the tutorial programme has grown substantially over the past two years. In terms of the Policy, all tutors are required to be trained, and teaching staff properly involved in the rollout of tutorials.

■ **Co-curricular activities.** This strand has received least attention during this past year. UJ has a well-developed sports portfolio, as well as Arts and Culture with a well-known Arts Centre and a number of Choirs. Performance is generally at a very high level. However,

it is perhaps this fact which limits involvement to less than 20% of students. Such co-curricular activities are presently primarily available to residence students, or to those with own transport, which excludes the majority of day students.

■ **The residences as sites of academic excellence.** Approximately 15% of UJ students live in residences, on or in close proximity to the 4 campuses. In collaboration with Student Affairs, a conscious focus on academic excellence in the residences has emerged, which is being driven by the wardens, house committees and appointed residence advisors (senior students). Student performance is being monitored, compulsory study hours in the evenings introduced, and a workshop programme on Life Skills is being offered by the Centre for Student Counseling and Career Development. At the same time, a 'learning communities' initiative is being piloted in three poorly performing residences; this involves introducing students to the notion of 'learning communities', ensuring that they have the necessary facilities available, and monitoring 'from a distance'.

Structures underpinning FYE

As discussed by Boughey (2009), Academic Development has frequently been limited in its impact, through its peripheral, 'add-on' situation in most institutions. From the outset, FYE was conceived of as embedded in mainstream teaching and learning activities at UJ; and it was important that its associated structures be similarly institutionalized. On the one hand, FYE is driven from the centre: from a FYE Committee, chaired by the Executive Director: Academic Development and Support, which brings together Faculty FYE practitioners on a monthly basis. This FYE Committee reports to the Senate Teaching and Learning Committee, through which it also reports to Senate. The Vice-Chancellor has been instrumental in requiring that FYE reports serve at Senate, which allow necessary issues to be raised for discussion. On the other hand, each Faculty is required to institute a committee at which FYE matters are discussed: depending on the size of the Faculty, this may be a dedicated Faculty FYE Committee, or the Faculty Teaching and Learning Committee. A core position is that of the university-wide FYE Coordinator, appointed within Academic Development and Support, whose function is primarily that of liaison and awareness building, across the university. The FYE Coordinator, for instance, represents FYE on the four campus forums, to ensure that awareness is built on all four campuses, and that campus specifities are accommodated.

Progress and impact during 2010

FYE has been carried by a wave of enthusiasm during this initial year of rollout. Impact has been twofold. Firstly, FYE has undoubtedly contributed to a change of mindset at UJ. As part of the broader focus on teaching as a core activity, it has generated discussions around teaching and a growing awareness of student competencies and needs; staff involved in first-year teaching have begun to take a fresh look at approaches and curricula. Yet, while FYE is conceptualised as an institutional project and has received high level institutional support, it is still being carried by relatively few teaching staff. Student-focused teaching, with regular assessment and feedback, undoubtedly adds to staff workload, and this must be fully acknowledged and appropriately factored in to Faculty planning. In addition, the FYE Committee meetings must now begin to take on a different role: at the outset they addressed primarily logistical issues, but now that FYE is established, they must assist in building reflection around emerging good practice. It is pleasing that two FYE committee members have now submitted teaching portfolios as applications for the VC's Teaching Excellence Awards.

In terms of impact on students, first year student performance, to judge by mid-year results, has risen substantially; however, we should be cautious in attributing this solely or even in the main to FYE. Following on the influx of first-time NSC students in 2009, much greater care was exercised in assessing NSC performance and admitting students at the start of 2010, which has doubtless contributed to improved performance. The mid-year June results, and subsequent sets of examination results, will feed into the emerging research around NBT and NSC performance, which will allow us, over several years, to develop a much improved understanding of student success at UJ and the various factors associated with it.

Conclusion

FYE represents a 'mid-way' response to the challenge of student disadvantage. Prior to the institution of the FYE at UJ, academic and education development initiatives were dispersed across the University and in some Faculties still treated as peripheral. FYE, as a formally approved institutional response to student disadvantage, has brought about a growing acknowledgement of the responsibility and involvement of all staff in student success. For the teaching staff, FYE involvement is presenting good opportunities for learning about our students and about the types of curricula which may best respond to their needs, while the regular reports on FYE required by Senate are contributing to awareness and growing mindset change among professorial staff. In these ways, the FYE project will allow UJ staff to gain in understanding and expertise, and will position the institution, so as to be best prepared, in due course, for systemic change; for only a systemic response, as mapped out in the earlier sections of this paper, can adequately address the enormous challenges of unsatisfactory student performance. University managers may well find that by supporting interim solutions such as FYE, they will anticipate coming systemic change and better be able to prepare staff for creative responses.

NOTES

1 Scott et al 2007: 21
2 Scott et al 2007: 21
3 Tinto 2006-2007: 3
4 Tinto 2006-2007: 3
5 Tinto 2006-2007: 5
6 Boughey 2009
7 Boughey 2009: 3
8 See Letseka et al 2010, especially Pp 25-40
9 Scott et al 2007: 50
10 Scott et al 2007: 42

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Living the true meaning of the National System of Innovation (NSI): SA's Challenge in Science and Technological Innovation

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The current world of human dignity, rights and equality confronts major global challenges of climate change, clean energy, nanotechnology, environmental preservation and sustainability, increased superconductivity, food security and global health[1]. In addressing and solving these challenges, science and technology plays a central role. The revolution in biology through the unraveling of the human genome and its potential wide-ranging applications, and the arrival of the Internet, are transforming knowledge, communication and global culture at breakneck speed and, in the process, creating new knowledge and culture for the benefit of humankind. Many discipline boundaries are being crossed to transform and create new knowledge, which is the foundation of science and technological innovation. In our time, the complex and captivating issues of knowledge place clear responsibilities on society in general, and science and technological innovation in particular.

Knowledge enables us to address the pressing issues of our time and shape the world in which we live. This is not hard to understand if one appreciates the long history of knowledge development. This history reflects the extent to which knowledge is intimately related to historical, cultural and geographical circumstances. This history also reflects several fundamentals of knowledge: its meaning, its identity, its diversity, its context, its relevance; its use and its culture-relatedness.

The great discoveries of Louis Pasteur and Albert Einstein, the economic theories of British economist John Maynard Keynes, the Manhattan Project that lead to the formation of the atom bomb, were not the isolated, esoteric and miraculous breakthroughs they have been made out to be. They were, instead, the product of a complex dynamic interplay of societal, political, historical and economic pressures in knowledge for understanding and knowledge for use in which science and technology were essential.

Louis Pasteur's fascination with micro-organisms, for example, led him down the applied path towards understanding the pathology of disease, the creation of alcohol and commercially viable high-quality vinegar. Pasteur developed his science by accepting problems presented by a Lille industrialist, the French Ministry of Agriculture and Napoleon III[2].

In a recent book entitled *"What is Mathematics Really?"* Reuben Hersch had this to say:
"It is something people do. There is no need to look for a hidden meaning or definition of mathematics beyond its social–historical–cultural meaning…our mathematical ideas match our world for the same reason that our lungs match earth's atmosphere…"

It is obvious from the above that the triad relationship of academia, government and industry has a long history and is paramount for science and technology to survive, to succeed and to deliver the necessary translation to society in the forms of intellectual property, commercialisation, spin-off companies and consumable products.

The Ministry of Science and Technology has, by all accounts, been a success on all these fronts i.e. we have a strong and established department, we have a sound forward-looking national policy, we have many new structures and we have been growing the 'science pie' considering where we came from.

Science and Technology in South Africa

President Nelson Mandela established the Ministry of Science and Technology in 1994. It was clearly understood then that science and technology was the lifeblood of innovation, was an important pillar in driving the economy, competitiveness and in improving the quality of life of the nation. Advances in science and technology had, in other developed countries, underpinned competitiveness and their modern economies. "Science and Technology are the key to achieving sustainability and development simultaneously"[1]

Over the past 16 years, the National Science and Technology Forum was set-up as a "sounding board" to the Minister, the National System of Innovation was developed as the overarching policy, the National Advisory Council on Innovation was set up to advise the Minister amongst others on innovation and the allocation of the Science Vote, and a very thorough and comprehensive Foresight Exercise was undertaken to paint a picture and roadmap of the future. All the eight Science Councils underwent major reviews by international panels of peers followed by recommendations. It indeed was a remarkable period of serious reflection, policy formulation and review. One of the major distinguishing features of our national science system is that it includes the biological, natural, engineering and human sciences under one policy and one ministry. The Ministry of Science and Technology has, by all accounts, been a success on all these fronts i.e. we have a strong and established department, we have a sound forward-looking national policy, we have many new structures and we have been growing the 'science pie' considering where we came from.

Now, 16 years down the path we have traveled, the challenges are very different and from our own experiences – good and bad and the lessons learned – we can reflect and plan much better for the future. As science advances and continues its assault on human ignorance new areas and challenges have emerged: the human genome has been characterised, nanotechnology has emerged, preserving our environment has become critical and the role of ethics in the conduct and implementation of science and the products of innovation has emerged as an integral component. In South Africa the human sciences have emerged as our critical challenges. In this piece I reflect upon: Human Capital Development; the structural disjunctures within our NSI system; the poor attention to the human sciences and the lack of ideas and failure of leadership, as rate-limiting steps within the evolution of our science system, to articulate and take on the great opportunities that beckon globally.

Human Capital Development.

Too often, when we encounter difficulties in a system or a process, we resort to asking

for more money/funds – 'throwing money at the problem'. While money is critical for Science and Technology and innovation, I do not believe it is the primary problem within our system. The Government starting from almost nothing in 1994 has gradually over the past 16 years given focus and priority by increasing the allocation for Science and Technology. The Science allocation is now closer to 1% of the GDP. The Minister of Science and Technology has just "committed over R250m for accelerating human capital development and infrastructure initiatives", letter to Vice-Chancellors by Dr Albert van Jaarsveld, President and CEO of the NRF, 22nd October 2010. While this growing allocation is still below the 3% of GDP of the world's best benchmarks of the developed nations, it is nevertheless significant. While the allocation has grown, the correlation with human capital development, translation, product development, results and outcomes has been a mismatch. While the budget has been a 'vitamin-rich carrot', we have been blind to great ideas; we are poor at selecting the right and obvious niches upon which we have both comparative and competitive global advantages; we have lacked visionary and transformational leadership and, worst of all, lacked an active human capital development strategy and programme to drive science, technology and innovation now and into the future. These are what distinguish great nations from not-so-great nations. People and their development and their ideas, and not money within the system, are our greatest assets and investors in science, technology and innovation.

We continue to train scientists using the old systems and curriculum for a new and rapidly changing world. Our academy has not adapted to the new world in which knowledge in general is holistic, converging and crossing disciplinary boundaries. Our dominant focus on science and very little on technology is an example of this.

As a nation we train few scientists compared to our capabilities and relative to other nations. We continue to train scientists using the old systems and curriculum for a new and rapidly changing world. Our academy has not adapted to the new world in which knowledge in general is holistic, converging and crossing disciplinary boundaries. Our dominant focus on science and very little on technology is an example of this. Our universities of technology have a poor environment and infrastructure for training future technologists.

While our schooling system is weak and poor at delivering enough students with good grades in Maths and Science, as shown recently in the World Global Competitiveness Report where we occupied position 137, we do not do well with the few students that enter the system. Few students who enter the sciences qualify and even fewer progress to honours, masters or doctorates. Our process of renewal and developing future scientists and technologists is woefully inadequate to address our current and future national priorities. Currently, there is poor uptake of honours graduates within the higher education system. This has consequences downstream for the training of Masters and PhDs. The higher education sector does not have the capacity to produce enough PhD graduates for our needs. Only 40% of academics within the sector have PhDs, leading to low capacity supervisors and low quality supervisors; we produce 26 PhDs graduates per million of our population compared to 201 and 427 graduates in the US and Sweden respectively. China has increased its PhD production by 817% over a 13-year period. In the nature of our contestations as a nation, the science system gets 'deployed' by those currently in charge (invariably white males) to serve group interests rather than the national interest. Our system is inefficient and not cost-effective in human capital development.

Many of our own studies have also revealed that the system lacks postdoctoral fellows, who are often the driving engine of research, innovation, new knowledge and product development. While it is easy to allege that money is at the heart of this, what is often

not said is 'the alienating environment' within the system created by senior staff that drive many young scientists away from the system. Many students and employers, for that matter, stay within an institution or organisation, not for money, but 'for the intrinsic value of what they do; for the intrinsic value of what they study means for them, and how the institution and organisation in which they work cares for them'. It is easy to blame money and the schooling system, while the real elephant in the room is the pervasive and pernicious forms and shapes of racism within the higher education and science system itself, and this is not confronted openly but often denied. The poor human capital development, which is a major rate-limiting step, is the result of a poor schooling system, an alienating and racialised higher education and science council environment and a poor commitment to the process of transformation and equity of the system by its current senior staff and leadership.

The effect of these independent operations is to produce what superficially appears to be a diversified system with too many disjunctures and which ultimately negates the synergies within this NSI system that should lead to better coherence and coordination. Simply put, the architecture does not connect well and is unhealthy.

The disjuncture within the system

A system by simple definition consists of different components and or elements that function coherently and in a coordinated manner for a common objective or major function. Over the past 16 years many new structures were created under the banner of the NSI. These, often created in an ad hoc manner, were often motivated by individuals or groups with vested interests, often lacked a human capacity strategy that is in keeping with national transformation and were not driven by a long-term national strategic vision. While they were created under the umbrella of the NSI and are therefore part of the NSI, they often operate and function independently from each other. They are part of a system structurally, but as individual parts, do not operate and function as a system. Take for example the relationship between and within the eight Science Councils; the relationship between the Science Councils and the National Facilities; the non-existent relationship between the Science Councils and so-called state-owned enterprises. In all these, there is no relationship embedded within their Acts to foster the notion of a single coordinated system. Nothing in the Acts articulates for the MRC, the ARC, the NRF and CSIR to work together in the national interest. The relationship between the Science Councils and many other organisations that are involved in science and technology, such as the Water Research Council is even more distant. The effect of these independent operations is to produce what superficially appears to be a diversified system with too many disjunctures and which ultimately negates the synergies within this NSI system that should lead to better coherence and coordination. Simply put, the architecture does not connect well and is unhealthy. The reality on the ground is contradictory to the spirit of NSI policy.

The second level of disjuncture is the failure to grasp the relationship between all organisations that specialise in science and technology, including the state-owned enterprises such as Eskom, Denel, Armscor etc, and their relationship with the Higher Education System and with Industry/Private sector. A significant amount of science, technology and innovation is conducted through the Higher Education system, the State-owned Enterprise and Industry. Particularly the foundation for a future scientific or technological career is laid within the Higher Education system. Both Industry and the Higher Education system invest significant amounts of funds into science and technology. It is, therefore, essential to create bridging policy mechanisms between the State-owned Enterprises, the Science Councils, Organisations of Science and Technology, the Higher Education System and Industry into a single 'big' system that

addresses innovation nationally. Through such a big system the cost effective training of sciences graduates would be accelerated, the career pathing and skills development would be better facilitated and the funding of science and technology would be coordinated much better in the national interest. Indeed such a system would live up to the true meaning of the NSI.

The third disjuncture is the almost total disregard for the steering role of government in science and technology within the higher education sector and the industry/private sector. Each of these three spheres operates independently and jealously guards its turf. All that higher education wants from government is to receive funds and be left alone. Equally, industry wants to be left alone to protect its IP, its business needs and profit motive. Both systems serve the same society, under the same government and at times receive funds from government. A healthy and seamless interaction between these three spheres would be a cost-effective way to move from education to skills training to career to translation. Such a system will also effect a change in the behaviour of scientists, technologists and students. This interaction would link funds directly to societal needs and accountability. The Science and Technology in Society Forum 7th Annual meeting made the following statement "Collaboration among academia, industry, philanthropy and government contribute to maintaining economic and social vitality. Universities and research institutions should provide basic research, advance results of Research & Development stimulating innovation, as well as science and engineering education. Universities are the hub that links the humanities and science, promoting critical thinking and preparing students to be responsible global citizens. Supporting education and research and local entrepreneurs creating spin-offs are essential for capacity-building in developing countries"[1]

Universities are the hub that links the humanities and science, promoting critical thinking and preparing students to be responsible global citizens. Supporting education and research and local entrepreneurs creating spin-offs are essential for capacity-building in developing countries"[1]

The fourth level of disjuncture lies in the failure to translate ideas, to translate products and intellectual property in the interest and for the benefit of the country and its people. Our science and technology remains arrested at the academic level. It remains a problem-defining venture rather than a solution and translation venture. Most academics enjoy defining and refining problems. Very few are inclined to find solutions i.e. they are not gifted to translate. Most leaders of our system have never developed or patented a product i.e. have never engaged in a process of nurturing an innovative idea from conception to translation and to product development and commercialisation. This is a serious handicap within our system, as we have no capacity to move within this value chain. Most of our accomplished scientists and technologists prefer to engage in academic and scholarly science without having to bother about the use or the translation of the science and the technology. Translational science, product development and commercialisation require different expertise, skills and personalities that are very different from the scholarly academia. This is easily measured by the poor levels of patents our science system registers in comparison to our publications, the failures of product development and the almost absence of biotechnology or spin-off companies and the lack of impact of the benefits of the products of science and technology in creating jobs nationally. Our economy is still largely resource-based and not knowledge or intelligence-based. In this area there is also another factor, which is that some scientist or technologist works in public organisation to generate ideas with great potential for commercialisation. When the idea reaches the stage of potential patenting or commercialisation, the scientist resigns from the public organisation and patents the idea and establishes small spin-off companies. This occurred more commonly within the recent past.

Our Unique Strengths?

Where are South Africa's strengths in science and technology, knowledge production and wealth creation? In the human sciences. We have produced 10 Noble Laureates, so we pride ourselves. The facts and experiences on the ground consistent with NSI are quite revealing:

- 6 of the 10 laureates we pride ourselves in are broadly in the Humanities i.e. literature, politics and peace;
- 6 of these laureate's seminal work was done in South Africa and generally related to the human condition our country faced;
- 3 of the 4 laureates in the pure sciences did their seminal work in countries other than South Africa i.e. the USA and UK. Claiming these 3 as our own is similar to claiming Roger Federer's exceptional achievements in tennis because his mother is allegedly South African. One can honestly and accurately say that, as a country, we have only ever trained or produced 1 laureate in Science, Physiology or Medicine, who did his/her opus magnum in South Africa, while we have produced 6 in the Humanities-related fields. Our science education system, particularly our postgraduate environment and infrastructure, are weak to compete globally;
- there is so much innovative and unexplored knowledge embodied in our indigenous languages, histories and cultures that only the humanities can explore and exploit;
- The moral and ethical dilemnas posed by the human genome, stem cell research, cloning and the Internet are important questions for humanity that clearly fall squarely on human and social scientists;
- the common problems encountered by our society i.e. crime, poverty, violence, corruption, moral degeneration and unethical conduct, are challenges whose analysis and solutions are more appropriately located in the humanities; the areas in which we as a country excel and are strong in i.e. international mediation, non-racism, reconciliation, justice, equity and even xenophobia- are all within the humanities domain;
- our icons and role models e.g. Mandela, Tutu, De Klerk, Coetzee and Godimer are all strong humanitarians;
- our central value i.e. Ubuntu is anchored philosophically and strongly on humanism and finally the *raison d'être* of our struggle was fundamentally to create a humane and just society. The priority in the creation of such a society is largely a humanities project based on sound societal values, morals and ethics.
- "To solve the serious problems of humankind, science and technology will not be sufficient without significant changes in individual and social behaviour…"[1]

Such a humane society, free of crime and corruption would attract investment and transform its work ethic to a highly productive work force. In this all-encompassing project the humanities would contribute significantly and become the springboard and central pillars of other societal developments including science and technology.

For the above factors I regard the humanities as our priority national knowledge project for which we have an unparalleled history, icons and a social laboratory of unique value that should be exploited by scholars. Even our Constitution, the blueprint of our society, and regarded as the most advanced and liberal in the world, also underpins this humanistic approach to the organisation of our society and, consequently, its knowledge production and innovation. Such a humane society, free of crime and corruption would attract investment and transform its work ethic to a highly productive work force. In this all-encompassing project the humanities would contribute significantly and become the springboard and central pillars of other societal developments including science and technology. Were Einstein to arise from the grave today, he would be much happier practicing science amongst poets, literary scholars, performers, creative artists and philosophers than amongst 'nerds' of scientists. In fact a large aspect of the so-called

South African miracle, or even our exceptionalism, is grounded on the abundant humanism of South Africans. Confronting the above South African experiences would need more and earmarked government investment into strengthening our humanities in Higher Education.

Our other niches are in mining, biotechnology and animal and human health and diseases. These were identified through a comprehensive Foresight Exercise. However, despite limited capacity, we continue to invest and spend our resources watching the skies. Perhaps looking for God or preparing the nation for heaven? Both not bad ideas in themselves! When physicists occupy the leadership of our NSI our niche areas become physics oriented and physics driven.

Lest I am misunderstood I do not wish to underplay the well-established role of the purer science and technology in development and in the assault of ignorance in society.

"Dead ideas" and poor leadership.

Science and technology is often driven through knowledge and new ideas and not through money. Money follows innovative and excellent ideas in science and technology and not the other way round. In fact many funders across the world are looking for such ground breaking "blue skies" ideas, or "grand Challenges" innovative ideas. Innovative ideas in science and technology thrive often in particular environments where there is excellent leadership. We miss both within our system. Over the past 16 years a plethora of good policies and funds have been thrown into the system but it continues to under-perform and alienate young scientists. The current leadership is reproducing the old system of individualism, exclusion and apartheid within the new dispensation. One has to simply assess the progress of transformation within the current system, the structures and functioning within the current system, the recognition and reward system, leadership within the system, the lack of a systemic approach to national priorities within the current system, the romantic preoccupation with the old *modus operandi* within the system, who is being developed and being recognised within the system, to come to the realistic conclusion that the system as is, is using the new dispensation to reproduce and maintain the old. This is perhaps the greatest threat to future equitable and demographically representative development. For as long as our leaders in science lack the confidence to break with the past and have not yet undergone Ngugi's "decolonisation of the mind" so shall we, as a nation, remain a nation of copycats rather than original thinkers and be 'arrested in our development'. Our current leadership lives in the realm of "dead ideas" and afraid either "to explode" or bury these "dead ideas", often out of "sense of tradition"[3]. Our destiny shall be determined by alien ideas rather than our own. Perhaps while the Constitution tells us that we are one nation, in reality we are not, and a deeper analysis of science and technology reveals another microcosm of our society.

Innovative ideas in science and technology thrive often in particular environments where there is excellent leadership. We miss both within our system.

South Africa has a great opportunity to deploy science and technology to live to the true meaning of the NSI and make a great contribution to the exciting opportunity beckoning globally. However, we need to get our own house in order first.

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Human Capital Development in a Post-Apartheid Societal Reconstruction in SA

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Democracy is today accepted as the default form of political legitimacy. A robust democracy requires a culture that respects the dignity of individuals and the freedoms we associate with that respect1. But democracy as a set of cultural values and a form of citizenship is fragile, and raises new questions which need to be explored both within countries and from an international perspective.

For its part, globalisation is also challenging nation states and intensifying competition and competitiveness accompanied by apprehensions about job losses and new disparities and inequalities. Remarkable advances in telecommunications and transportation have also prompted unprecedented demographic shifts, in which previously isolated peoples are being brought together voluntarily and involuntarily into new and ever closer neighbourhoods by the increasing integration of markets and the emergence of new regional political alliances[2].

What we see in the resulting confluence of peoples and cultures is an increasingly global, multicultural world, brimming with tension, confusion and conflict in the course of its adjustment to pluralism[3].

Questions about diversity and community and what should constitute 'core values' gain new significance4, while the rise of religion as a parallel form of governance forcefully brings to attention the spiritual dimension of community and organisation, with local and global dimensions. Diversity, once understood in terms of gender, sexuality and race, has now acquired urgent new dimensions such as ethnicity, culture, religion, and values, raising the idea of diversity itself to political significance.

It is possible that democracy based on homogeneity of culture, ethnicity and religion; and democracy based on heterogeneity of the above, share common normative frameworks? However, in order to gain broader insights, it is also important to understand in greater detail the manner in which democracy, human rights and diversity and values are lived and envisioned both in the present and the future.

As it becomes clearer that communities living together do not automatically blend into a 'great melting pot', the expectations of equality in assimilation and equality in diversity (which is emerging as a challenge across Europe) also needs to be better understood. Here, education cannot any longer bury its head in the sand and pretend that its only purpose is to produce a skilled workforce!

Educationists and experts from communities across the world need to be brought together in multidisciplinary and cross cultural teams to analyse and draw lessons and insights from diverse contexts and contemplate new directions for the future of societies. From this point of view, globalisation can be seen as offering new possibilities for innovation, dialogue and exchange of insights and heuristics.

Some key questions for both democracy and education would be:
- How is democracy and education accommodating differences whilst maintaining a shared sense of civic identity in both South Africa and Africa at large?
- What is the new 'universal', and what forms of new social compact are necessary to balance the particularity and the universal/global basis of values?
- To what extent are concepts such as deliberative democracy, which stresses authentic participation in the process of achieving consensus on collective interests, and mindful multiculturalism, which highlights how culture influences different perceptions of the same solution, and enables children and adults to become comfortable with their base and their multiple acquired identities5 helpful in the formation of the new social compacts?
- How is education responding, and how should it respond to this tension?
- What constitutional formulas and legislative frameworks exist in different countries that are helpful in elucidating the interplay of cultures, communities and diversity?

Challenges to Education from Understanding Direct, Structural and Cultural Violence

Founder of peace studies Johan Galtung distinguishes between direct, structural and cultural (or epistemic) violence. According to Galtung, direct violence kills quickly or maims. Its victims are numbered through body counts. Killing and maiming together constitute what are commonly called 'casualties' - used in assessing the magnitude of a war. Negative peace is therefore the absence of direct violence.

…violence is structural when force is not exerted wilfully by a person but by a structure created and perpetuated by a custom or law. It is present when human beings are being influenced so that their actual somatic and mental realisations are below their potential realisations. The violence which is built into these structures does not give citizens equal power and life chances.

At its most overt, it denotes bombs not falling on Belgrade; it denotes artillery shells not falling on Zagreb; teenage boys not mowing down their classmates in the Columbine High School cafeteria; men not attacking their (ex)-wives, Nazis not burning Jews, leftists and gays, Hindus and Muslims not rioting, and so on.

But violence is structural when force is not exerted wilfully by a person but by a structure created and perpetuated by a custom or law. It is present when human beings are being influenced so that their actual somatic and mental realisations are below their potential realisations. The violence which is built into these structures does not give citizens equal power and life chances[6]. When equality is withheld from citizens, the term structural violence can be applied to the state of affairs. Other manifestations of structural violence can be identified in:
- paternalistic and selective development which arbitrarily deprives certain areas of possible development.
- systems of slavery, colonial oppression and apartheid (including ghettoes in contemporary society).
- violence of the status quo, meaning the routine oppression and racism by the 'good humour society' which systematically robs and marginalises people in everyday life situations.

■ structural violence of apartheid, institutionalised through racial legislation.

Structural violence shows itself when resources and powers are unequally shared and are the property of a restricted number who use them, not for the good of all, but for their own profit and the domination of the less favoured. Even peaceful laws and practices which help to maintain this order can be seen as 'instruments', 'masks' or 'guises of violence'.

One way in which cultural violence works is by changing the moral colour of an act from wrong to right or to some other intermediate meaning which is palatable to the status quo. Another way it works is by making reality opaque, so that we do not see the violent act or fact, or that when we see it, we see it not as violent.

Thornton, adds to the above analyses by warning against analysts getting trapped in what he calls the 'structuralist account of violence' which presents a static image which distinguishes only between 'violent' and 'non-violent' structures. Violence, he contends along with Galtung, are meaningfully constituted, and from that point of view, are sustained by human actors in everyday life situations[7].

Cultural violence highlights the way in which the act of direct violence and the fact of structural violence are legitimised and thus rendered acceptable in society. One way in which cultural violence works is by changing the moral colour of an act from wrong to right or to some other intermediate meaning which is palatable to the status quo. Another way it works is by making reality opaque, so that we do not see the violent act or fact, or that when we see it, we see it not as violent[8].

By making reality opaque, cultural violence prevents consciousness formation (conscientisation). Blocking conscientisation and mobilisation means preventing the processes needed to transform the interests in a structural conflict into consciously held values. It also means preventing or blocking the processes needed to transform a non-organised, non-crystallised party to a structural conflict into a conscious actor in a conflict. A mere act of benevolence or charity (of whatever degree) from above blunting repression and exploitation is primarily insufficient[9].

Cultural/epistemic violence - often expressed as cultural power, legitimises the other two types of power, finding language and telling those who wield power that they have a right to do so, even a duty - for instance, because the victims of direct and/or structural power are pagans, savages, atheists, kulaks or communists[10].

Positive peace is the absence of structural and cultural violence. To what extent has education, by its amnesic focus on the labour market, unwittingly become an instrument of cultural violence?

Challenges from colonial historical legacy: Schooling and education – whose normative heritage?

Fägerlind and Saha have stated that education plays key roles in the development of an individual and society. In its skills and human capital formation role, education provides a learner with new skills and knowledge that should enable her/him to function in a modern society. In its liberation role, education has been conceived as a tool for illuminating the structures of oppression and equipping the learners with the tools to alter those oppressive structures in society[11].

However, there is a third role of education which is the transmission of the normative heritage of a people from one generation to the next. A people's culture, wa Thiongo wrote, is the carrier of values evolved by that community in the course of their economic and political life. The values they hold are the basis of their world outlook, the basis of their collective and individual image of self, their identity as a people who look at themselves and to their relationship to the universe in a certain way[12].

In the context of Africa, the two last roles of education: that of liberation and that of transmission of the normative heritage of a people, need to be critically revisited. It is quite evident that by transmitting judiciously, the normative heritage of only one culture, the Western, and transposing it onto ALL other people, education, as presently constituted, becomes a key carrier of a most insidious cultural and epistemic violence.

As people's thoughts and cognition are shaped to enhance maximal congruency with the values and practices of Western society, and as this process is routinised and made to appear quite normal, discourses are formed to legitimise this normalcy, and any attempt to create or contemplate another discourse is quickly rendered as an anomaly. In a context in which one nation or group of nations, race, or class dominates another, there can never be a 'neutral'

education transmitting a neutral culture[13]. But today in Africa, it is not only that an education transmitting a normative heritage of a different people has been securely put in place and is heavily financed. It is also now given the status of 'universal', and a basic human right.

But this is not all. Carnoy[14] argues that as an equaliser of opportunity and agent of social mobility and change, schooling does serve as a means to a higher status for a small percentage of the poor, and may contribute to dissent and original thinking which end up as powerful forces of societal change. But these, according to Carnoy, are not the primary purposes or functional characteristics of the school systems.

> … they are by-products of schooling which occur as it attempts to achieve its main function of transmitting the social and economic structure from "generation to generation" through pupil selection, defining culture and rules and teaching certain cognitive skills.[15]

As the modern capitalistic system is by and large controlled either by 'outsiders', foreigners with very different cultures, history, social structures; or by a local class of people who represent interests, consumption patterns and cultural identity increasingly different from the bulk of the population, the possibility for understanding and emphathising with the entrapment and alienation functions of schooling is completely lost.

But what is also lost is the capacity to emphathise with those, like peasants and rural non-literate people excluded from the process and stigmatised for not possessing what the schooled possess. As the poor peasant's son or daughter jubilates over coming to town to gaze at the highrise flats and streetside restaurants permanently hooked to contemplations about the possibility of getting a highly paid job one day, they forget that they thus also give up control over their own time, social conditions and freedom.

> …Thanks to his migration to the city… he has increased his choice of some goods but has also become dependent on working and social conditions set by others outside his control.[16]

According to Carnoy, even those who do not go to school are affected by this transformation because they define themselves by the fact that they lack schooling, and thus identifying themselves with the bottom of the social structure. Once the transition from traditionalism

to capitalism is made (sometimes even before it is well done), the school system becomes less an agent of social change and more and more an agent of maintaining the social structure, of 'keeping the converts in' and remaining basically uninterested in those outside it.

Schooling in Third world countries remain, with minor content adjustments, intact carry-ons from the colonial period. Schooling has therefore helped to convert people to the new hierarchy, but not to help them develop societal relationships that carry them beyond the capitalist system whether this benefits them or not. Transformation of a type is also achieved, but the tools of change are not taught in schools.

In the context of colonialism and imperialism, the above transition was carefully defined. It was used specifically to develop indigenous elites which served as intermediaries between the metropole merchants and plantation labour. They were to help change the existing social structures to fit in with the European concepts of work and interpersonal relationships. Indigenous peoples were then to be brought and integrated into imperial /colonial structures. The European teacher built the school based on the European capitalist model within which particular European values and norms were posited as constituting pathways to modernity and the 'world' market.

> In order to accept, as many western writers state, that schooling in the colonial period contributed to development, one has to accept that imperialism and colonialism was…beneficial to the colonised peoples.[17]

But schooling serves an actual or desired social structure. Schooling in Third world countries remain, with minor content adjustments, intact carry-ons from the colonial period. Schooling has therefore helped to convert people to the new hierarchy, but not to help them develop societal relationships that carry them beyond the capitalist system whether this benefits them or not. Transformation of a type is also achieved, but the tools of change are not taught in schools.

Nor are children and adults brought to understand their relationships to institutions and how they can change those institutions to suit their needs. For those children,

especially girls who gain least from the system, they endure the stigma of losing out on this process of attaining 'ultimate' transformation, but are also left without an alternative framework of equal status to proceed with, as the traditional form had already been so successfully derided and denigrated.

Western schooling thus does bring people out of traditional hierarchy into a capitalist hierarchy. One liberation leads to another entrapment, dependency and alienation. In contemporary practice, it is only the liberation aspect that is broadcasted from rooftops. The other dimensions are, presumably, not so very interesting.

Challenges to Education from Gender, Development and Modernisation

Sometimes the terms modernisation, development and westernisation are used so interchangeably that they seem to mean one and the same thing. Thus one is 'modern', when one is 'developed', in the 'western' way. The embitterment that African feminists and other prudent analysts feel towards the modernisation scheme as a whole however, gets a most lucid explanatory in Shelby Lewis's categorisation of the seven distinct emphases of the modernisation approach to development which have all functioned to the disadvantage of women in the development process[18]. Three of these categories are briefly outlined below.

Growth

The definitions and stages of economic growth and modernisation theories popularised by, among others, Rostow, 'The Rostovian curse'[19], which exclude most of the work that women do. The African woman's full job description of farm manager, agricultural producer, agricultural processors, retail businesswoman, entrepreneur, mother, professional housekeeper, and child minder do NOT appear anywhere, not even as footnotes or annexes to the Rostovian indicators for development and growth which faithfully guides development agency and governmental work. Secondly, growth theories of economic activity do NOT include the actual production of the food that feeds African nations when that production is done by unpaid, usually female labour. Insult is added to injury when the entire donor and national strategy support is based on analyses based precisely on those aggregates from which women are largely excluded.

Industrialisation

Ever since the beginning of the modernisation phase, sometimes referred to with bitter affection as the

colonial period, it was a matter of policy to compel African males to move to the wage sector as a means of getting both cheap labour for the European mines, and as a way to extract poll or hut tax in cash from the non-monetised people of Africa. The women were not only 'encouraged' to stay behind, but were discouraged from living together with their men folk in their workplaces in those mines. This controlled urban population worked in favour of the colonialists, while ensuring that African women and children were not an economic burden to the colonial authorities. The majority of African women work in the rural and traditional sector sometimes under hard conditions, coupling their traditional roles with those previously carried out by their men folk now vacated from their homes in search of menial means of survival. Yet, under an approach to development that emphasises wage income and industrialisation, all these efforts women make are, at best, marginalised, and at worst, regarded as inconsequential[20].

Technological transfer

Techological transfer is of little consequence to women because it benefits mostly men who are already well advantaged by other means. This not only condones, but also entrenches, and often aggravates the situation of gender and class inequality. Development planners in the context of Africa are reluctant to target women as beneficiaries of technological transfers because this would upset the patriarchal order and creed. In many parts of Africa, the introduction of tractors for instance, made it possible to clear far larger tracts of land than old methods of clearing land permitted. But this translated into more work and longer hours for women, who had to plant, weed, harvest and store the products of their labour without technologically advanced tools! Technological transfer also does not take into account the fact that the traditional sex division of labour does not make adjustments for disadvantages resulting from the new technology.

Education, Xenophilia, and negation of Self: The crisis of post-colonial identity

The pain of obsessive denial of the self in order to identify with the forces that constitute themselves as the 'centre', is a typical feature of the post colonial identity in most of Africa and possibly the Third World as a whole. Hickling-Hudson dealt with this problematic from a post modernist perspective[21]. She attributed this systematic perversion of individual identity to the imposition, over an extended period, of the modernist claim to exclusivity and to the establishment of the totalising meta-narratives.

She argues that there is a continuity of preoccupation throughout the historical process initiated by European imperial aggression that calls for and challenges scholarship at a different level. The referent she posits is post colonialism in which 'post colonial' would refer to the connection between the up-side-down way people perceive themselves in Africa, and the explanatory in that their identities emerged out of the experience of colonialisation. This means that by being encultured and certified as successful on the basis of an educational process that foregrounds the omnipotence of the imperial power, it emphasises people's differences from the assumptions of the imperial centre.

An exploration into the crisis of post-colonial identity would focus on place and displacement, a rejection of the concepts of marginality and a challenging of the power structures, along with the meanings they impose, from the perspective of the disadvantaged. The understanding of global structures and their relationship to historical and contemporary capitalism would enable students to see the role performed by educational systems locally and globally, where they fit into the economic structures and patterns served by education, and the constraints and possibilities for change.

Hickling-Hudson writes:

> …The limited educational reforms in the underdeveloped countries… may modernise curricula and increase access for growing numbers of students, but there is serious distortion and deception in the underlying assumption of these reforms… (By) making no reference to the local and international economy, they perpetuate the myth that formal schooling, western style, will enable the poor to emerge from their backwardness and ignorance to join the modern world. This myth is debunked by neo-marxist economic analysis…. critical education theory, and post colonial philosophy which have challenged western assumptions of having all the correct answers… (Indeed), even those who denounce the injustices of imperialism have not, themselves the capacity to find and articulate what is true and what is real.

> The oppressed must name their own oppression and liberation…The struggle against oppression gains power by drawing…peoples' heritage and experience of liberation into dialogue with other interpretations. Only in this way can dialogue avoid being one-sided[22].

The Hug of Death:
Effects of colonisation and humiliation: stunted identity, fear and hatred

To observe the relations between the coloniser and the colonised is to discover forms of psychological trauma that are hard to express. The daily humiliation of the colonised, his objective subjugation and the extensive realm of continuing colonial privilege are not possible to cover in this paper. The irony is that the poverty and degradation of the colonised and marginalised people continues to justify the presence of the colonisers.

Per every unit of a European presence there exists a hundred units of power and might from the metropole. Choice is non-existent. If he attempts to fight, he is physically conquered, and if he attempts to demand while on bended knees, he is belligerent and is simply denied the alms. As Carnoy puts it[23], the coloniser can enforce his usurpation with great punishment. High rewards are however available for those who seamlessly incorporate the coloniser's codes, and call it a human right.

The colonised adjusts to this situation by developing those traits with which the coloniser recognises him. If he is seen as lazy, vicious, dishonest, uncivilised; or (as is in vogue today), that he lacks 'capacity', he must act that way and fulfil this definition. Although many of these traits are incompatible with each other, no matter, it still would not be of interest to the coloniser, because the general traits are designed to destroy any culture or history that the colonised brings to the relationship.

As Memmi states, at the basis of the entire construction, one finds a common motive; the coloniser's economic and basic needs which he substitutes for logic, and which shape and explain each of the traits he assigns to the colonised. In order for the coloniser to be a complete master, it is not enough for him to be so in actual fact, but he must also believe in its legitimacy. In order for the legitimacy to be complete, it is not enough for the colonised to be a slave, he must also accept his role[24]. This is what makes the story of the post apartheid South Africa still an incomplete narrative.

Towards the future
The Hug of Life 1: Cultural and Cognitive Justice

If culture is that which is taken for granted - a comfort zone of everyday, ordinary ways of living, then it is easy to recognise why a threat to a people's culture is perceived as a personal threat[25]. What Kwenda proposes is functional respectful co-existence. By respectful he means mutuality in paying attention, according regard and recognition, as

well as taking seriously what the Other regards as important. By functional is meant that coexistence is predicated on a degree of interaction that invokes the cultural worlds of the players, in essence – what they, in their distinctive ways, take for granted. He takes for his analogy the situation of Africa which is instructive for the deepening of our discussions here.

In Africa, he argues, social cohesion does not depend on state sovereignty, liberal democracy, the advance of modernity or the global economy, but upon the millions of African people willing to sacrifice what they 'take for granted', by bearing the uncomfortable burden of speaking and acting in unfamiliar cultural idioms within all areas of everyday life. Africans are not passive victims of cultural imperialism although they have been subject to coercive interventions, but active agents in negotiating unfamiliar, strange and alien cultural terrain.

According to Kwenda[26], cultural injustice occurs when people are forced by coercion or persuasion to submit to the burdensome condition of suspending – or permanently surrendering – what they naturally take for granted. This means that, in reality, the subjugated person has no linguistic or cultural 'default drive' – that critical minimum of ways, customs, manners, gestures and postures that facilitate uninhibited, un-self-conscious action.

Social cohesion especially in the southern part of Africa would easily collapse if Africans, as the natural majority, were not willing to suspend 'that which is taken for granted' and bear the burden of unfamiliar cultural transformations. Cultural justice therefore requires at minimum, that this burden of the unfamiliar needs to be shared more equitably by people from different cultural backgrounds across society.

By cultural justice is meant that the burden of constant self-consciousness is shared or at the very least recognised, and where possible, rewarded. The sharing part is very important because it is only in the mutual vulnerability that this entails that the meaning of intimacy and reciprocity in community can be discovered. It is also in this sharing that on the one hand, cultural difference is transcended, and on the other, cultural arrogance, (by which is meant that disposition to see in other cultures both difference and deficiency) is overcome. The cultural work that is entailed in constructing functional tolerance, therefore, goes beyond providing equal opportunities in say, education, to the unclogging of hearts filled with resentment.

Social cohesion especially in the southern part of Africa would easily collapse if Africans, as the natural majority, were not willing to suspend 'that which is taken for granted' and bear the burden of unfamiliar cultural transformations. Cultural justice therefore requires at minimum, that this burden of the unfamiliar needs to be shared more equitably by people from different cultural backgrounds across society[27].

To speak of cultural justice in this scenario, is to expect that cultures are experienced positively so that their healing and enriching capacities may be released28. An education that is ambivalent to its role in perpetuating cultural injustice is one that is heavily implicated when deeper notions of equity are invoked.

The Hug of Life 2: Education for a Culture of Peace
According to Richards, peace – to the extent that it exists at all – is perhaps best thought of as a fragile, complex, ongoing, collective social achievement. In the words of former UN Secretary General Kofi Annan:

"Peace is never a perfect achievement," Annan said, "because it follows war, suffering, hatred. It follows the worst that man can do."

"To restore humanity from such hell requires the patience of ages, the will to see light when all is dark and hope when all is bleak. It is truly the work of those who shall run and not be weary … of those who shall walk and not faint"[29].

Many different motives lead people to break the peace. Tendencies toward violence are deeply rooted in the human body. Furthermore, the institutions that culture has created have not, as a general rule, brought out the best in human nature. On the contrary, war, overt violence, and structural violence have been readily institutionalised.

Peace, when it happens, happens because, in spite of drives toward war and, generally, toward violence, there are many peaceful institutions and practices. These practices build on tendencies toward peace which are, like those toward violence, also deeply rooted in the human body. (If it were not so, humanity would have become extinct long ago). The positive institutions, the labours of love, strive to make sure that all of the many things that might go wrong, don't happen. When peace succeeds, when humans do not kill other humans, it is a multi-faceted accomplishment[30].

Education for a culture of peace would infuse the living and coming generations with a profound aversion to violence. It also means understanding conflict as part of human existence, and learning the skills for transformation of those conflicts without resorting to violence. It builds on the good and the best from different cultures, traditions and faiths, to create a new ethic for human existence.

NOTES

1   Hiley 2006
2   Odora Hoppers 2005
3   Ayton-Shenker 1995
4   Alpherson 2002
5   Odora Hoppers 2006
6   Galtung 1996
7   Thornton 1990; Galtung 1996
8   Galtung 1996
9   Galtung 1985, 1996
10   Odora Hoppers 1998
11   Fägerlind and Saha 1989
12   wa Thiongo 1981
13   Odora 1993a, 1993b, wa Thiongo 1981
14   1974
15   Carnoy ibid. p.13
16   Carnoy 1974 ibid. p.15
17   Carnoy ibid. p.16
18   Lewis 1986
19   Odora Hoppers & Richards 2011 forthcoming
20   see also Odora 1993a
21   Hickling-Hudson 1992
22   Hickling-Hudson 1992 p:119
23   Carnoy 1965
24   Memmi A. 1965 p.89
25   Kwenda 2003
26   Kwenda 2003
27   Kwenda 2003
28   Kwenda 2003: 67-68
29   cited by Cassandra 2004
30   Richards 2004

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Peter Brown – *South Africa's Forgotten Hero*

By Anthony Egan

We won't get rid of the Nats through the ballot box. The implication is, then, that things will either get worse economically or get worse politically between the races, or both, until there is such a deterioration that white voters won't stand for apartheid any longer. I very much doubt if, even at that stage, the Nats will be voted out of power. It seems to me to be more likely that they will prefer to negotiate. They will have to get together with people opposed to them and bargain. The bargaining will be tough but the balance of power is such that there will have to be an accommodation. The blacks have the numbers and the labour. The whites have the armed power, the skills and they have been clever to ensure that it is only they who know how to run the apparatus of state... At this stage of negotiation we would, I hope, have a vital role to play, provided we have built ourselves up enough in the interim and had managed to maintain a reputation for integrity on both sides of the colour-line.[1]

These perceptive words were not the fruit of a progressive political analyst of the mid-1980s viewing the growing stalemate between the apartheid state and mass resistance movements. The year in which they were written is 1961 and the author is a largely forgotten political leader, Peter Brown.

One of the roads off the N2 motorway into Pietermaritzburg is Alan Paton Drive, named after the famous novelist, poet, amateur theologian and leader of the (apparently) ill-fated Liberal Party. Everyone has heard of Paton: author of the classic novel Cry the Beloved Country, close friend and sometime speech-writer of the Nobel Laureate and African National Congress president Albert Luthuli, latterly a fierce critic of sanctions and a person too close for many to the controversial Chief Mangosutho Buthelezi during the turbulent 1980s. In contrast few have heard of the other 'name' that links Pietermaritzburg to the 'outside world': Peter Brown.

With this biography, Michael Cardo has given to someone who has hitherto been a 'name' a face, an identity , and a life whose contribution to the struggle for democracy in South Africa perhaps in the long run dwarfs that of Paton – and, dare I say it, of many other struggle heroes. This new book, a superb biography and valuable contribution to Liberal Party history, also challenges many of the popular misconceptions about South African liberalism, revealing it for what it was: dynamic, pragmatic, evolving and ultimately central to the contemporary democratic dispensation in the country.

So who was Peter Brown, this private pragmatist and architect of democracy? Born on Christmas Eve 1924, Peter McKenzie Brown came from an affluent Old Natal Family marked by a kind of conservative settler noblesse oblige that would have made him a natural Tory in England. Yet Brown's encounter with black South Africans at Adams College in his teens and his subsequent service in the South African Union Defence Force in World War Two, where he imbibed the liberal-radical values of the Army Education Service[2], made him see that the established racial supremacy of his country

was both immoral and unworkable.

From the beginning a practical man, Brown began a degree in Agricultural Economics at Cambridge University, giving it up when he felt that it was too theoretical. What his year in Cambridge did do for him was expose him to black South African exiles like Peter Abrahams who confirmed him in his sense of racism's injustice and made him a committed activist against what in 1948 became known as apartheid. Having returned to South Africa and completed a degree at the University of Cape Town, Brown threw himself into politics. Still believing in what was called a 'qualified franchise', as an interim measure geared as much to winning over white supporters for non-racial democracy, he helped to found the South African Liberal Party in 1953.

Unlike some radical historians[3] who come at the Liberal Party from a later 'presentist' position – a moral 'high ground' rooted in the 1980s struggle for non-racial democracy and explicit support for the African National Congress – Michael Cardo highlights the complexity of the Liberal Party from its origins, its internal diversity of opinion and its relations with the Congress Alliance.

The Liberals were a mixed bunch, ranging from the fairly conservative Cape liberals (many of whom, Cardo seems to imply with characteristic generosity of spirit, were still very much living on the memory of the 19th century Cape liberal tradition) and the more radical Transvaal liberals, with the Natal liberals (of whom Brown and Paton were part) holding the always uneasy 'centre'. Nor were these positions static: by 1958 the official Liberal line was universal adult franchise, a position that Brown himself came to hold fairly early on in his life in the Party.

Similarly, Cardo notes (here echoing the work of historians like David Everatt[4]), the Liberal Party was not universally hated or denigrated by the Congress Alliance. Despite tensions between them and Congress, particularly over universal franchise and protest politics, excellent relations existed between many Liberals and Congress, particularly those in the latter uncomfortable with growing Communist influence within the Alliance. Brown built up excellent relations with Natal ANC leaders (as did Paton – particularly with Luthuli) and was more worried about the toenadering between Liberal 'loose cannon' Patrick Duncan and the Cape Pan Africanist Congress (PAC)[5].

After the banning, and virtual collapse, of the ANC alliance in the early 1960s, the Liberal Party became a home for many ANC members. With many of the conservative wing of the Party hiving off to join the Progressives, the Liberals shifted leftwards.

By the mid-1960s some of its younger members had even called for it to be called the Socialist Party. The name was not changed but its policies moved leftwards – effectively endorsing a kind of social democracy, a position Brown cautiously endorsed. A few Liberals left the Party and got into armed resistance politics. This politically and tactically disastrous move was thoroughly disapproved by Brown on principled as well as pragmatic grounds[6]. He did however engage in the campaign to block the 'independence' of the Transkei, a decision by Brown and the Liberals that, to put it mildly, did not endear them to the Government and the Transkeian politicians that coalesced around Kaiser Matanzima. Such actions, nonviolent and constitutional as they were (marks of Liberal Party practice throughout its history), led to the Party's destruction.

For their troubles the Liberal Party were forced to dissolve in 1968, following the passage of the Orwellian 'Prohibition of Political interference Bill' – which labelled non-racial parties like the Liberals as 'interfering' in the 'own affairs' of 'racial groups'. Peter Brown, by then the leader of the Party, was himself banned until 1974.

Ever the pragmatist, the man behind the scenes who had kept the Liberals together from the late 1950s with a minimum of fuss or limelight, Brown moved into a range of other activities that would promote democratic values. He was a key figure in creating and editing the journal Reality, the self-proclaimed journal of 'liberal and radical opinion', and from the 1960s onwards became involved in land and farming organisations for black in rural Natal. He was central to the creation of the Association For Rural Advancement (AFRA) near Pietermaritzburg.

When the ANC and other organisations were unbanned in 1990, he chose not to re-enter politics let alone revive the Liberal Party, but kept a close watch on developments. He noted with pleasure the explicitly liberal values that underpinned the new Constitution – but was also wary of the unchallenged domination of the new ANC. He also noted before he died in 2004 that such hegemony was impossible in the long term. In 1996 he remarked that sometime in the future the ANC would collapse into factions – and that a new Liberal Party might then emerge.

It is rare nowadays that a single book deserves a long review. Scholarship is generally fragmented and so dedicated to 'little narratives'[7] that should be addressed equally briefly. But Michael Cardo's book is a fine exception for a number of reasons. Firstly, it deserves attention because it retrieves from the obscurity of road signs and the limited readership of scholarly articles a person whose importance for South Africa has been wrongfully overlooked. Peter Brown, in his rather blunt and unobtrusive way, was a hitherto forgotten colossus: a person who kept the Liberal Party going during difficult times, a pragmatist who could move with ease between conservatives and radicals, a visionary who saw (as the quote that begins this review admirably illustrates) the inevitability of apartheid's demise – and the liberal compromise that would replace it. While Alan Paton was the poet and at times 'public theologian' of liberal democratic values, Brown was its nuts and bolts technician, as well as its strategist.

Secondly, the book is a reasoned counterblast to much of the arrant nonsense written about South African liberalism. Cardo shows up the facile nature of much writing on liberalism, the kind of work that confuses liberal democratic values with contemporary neoliberal economic policies (themselves neoconservative aberrations to the minds of liberal economists until the rise of the global 'new right' in the late 1970s) or, in the South African context, with 'soft apartheid' ideologies. South African liberalism as espoused by the Liberal Party was a complex mix of pragmatism and non-racialism, as diverse as its members. By the 1960s, one might add, it was hardly different from the values of the ANC mainstream. The latter point is often conveniently overlooked, even perhaps by some of liberalism's strongest supporters.

Thirdly, this is a very carefully researched and well-written volume. Rejecting pious hagiography, the author also eschews rhetoric and speculative flights of pseudo-academic fancy, and does what any decent historian learns: tells his story using the available written and oral sources, making sure that he is true to the context in which the events happened. Then, and only then, he tries to ascertain the relevance of what he's written for today. And if such a study challenges historical prejudices and political correctness, so be it! Michael Cardo does just this, giving new life to both Peter Brown and the Liberal Party and pointing to the relevance of the values Brown and the Party espoused for the present day: honesty, integrity, fairness, pragmatism, careful reasoning and tolerance.

The result is a major work of scholarship that should be indispensable to any university course on modern South African history. It demolishes myths and in doing so forces us to rethink the basis of present day liberal democratic practice – for the new political parties that call themselves liberal as much as for the ANC. None, I suspect, live up to the vision of Peter Brown. All could learn from Brown's honourable life. For this, too, Michael Cardo deserves our praise.

NOTES

1   Cardo, Opening Men's Eyes, p. 163.

2   Little significant work has been written on this organisation's radicalizing influence on white South African servicemen, many of whom ended up after 1945 in the Communist Party or the Liberal Party, often via ex-servicemen's groups like the Torch Commando and Springbok Legion. For a tantalizing taste, sometimes little more than a smidgeon, of what further research might reveal see the chapters by Saul Dubow ('Introduction: South Africa's 1940s'), Jonathan Hyslop ('An Anglo-South African Intellectual, the Second World War, and the Coming of Apartheid: Guy Butler in the 1940s') and Shula Marks ('Afterword: Worlds of Impossibilities?') in: Saul Dubow & Alan Jeeves (eds.), South Africa's 1940s: Worlds of Possibilities (Cape Town: Double Storey Press, 2005) as well as in passing in E G Malherbe's autobiography.

3   I think here of the work of Paul Rich, particularly his White Power and the Liberal Conscience: Racial Segregation and South African Liberalism (Johannesburg: Ravan, 1984) as a case in point. His later work, Hope and Despair: English-Speaking Intellectuals and South African Politics 1896-1976 (London: British Academic Press, 1993), is perhaps a bit fairer and more nuanced in his judgments.

4   David Everatt, "The Politics of Non-racialism: White Opposition to Apartheid 1945-1960" (D.Phil thesis, University of Oxford, 1989) (and a subsequent published, shorter and revised edition) makes this point, particularly in relation to white Liberals and Marxists.

5   Jonty Driver's sympathetic biography of Duncan, Patrick Duncan: South African and Pan-African (Cape Town: David Philip, 2000), offers the other side of this story. Having read Cardo, I find myself wholly sympathetic to Brown.

6   Apart from a University of Cape Town MA by Andries Du Toit, there is little work of substance on this ill-conceived and ultimately tragic venture, the African Resistance Movement/National Committee for Liberation (ARM/NCL), an organisation that made Umkhonto we Sizwe's early revolutionary adventurism look professional by comparison. Even Randolph Vigne, in his otherwise impressive and comprehensive Liberals Against Apartheid: A History of the Liberal Party of South Africa, 1953-1968 (London: Macmillan, 1997), glosses over the incident.

7   So much so, that I suspect many books are themselves 'overweight' articles that barely justify the environmental cost their publication entails!

REVIEW

David Everatt

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The muscular liberalism of Peter Brown

By David Everatt

As 'the struggle generation' has aged, and the ruling ANC has undergone its own form of regime change, we have entered an era of autobiography, personal and institutional biography, memoir, and not too infrequently, mythology and hagiography. Quite often we are dished up a messy mixture of these sub-sets in a single volume (and lucky us when it is merely one volume). Famous people, infamous people, people who wish they were or thought they ought to have been famous, institutions and groups convinced their singular contribution to democracy remains un- or under-acknowledged, all are writing their stories. It is difficult to avoid the feeling that many are South Africa's equivalent of Spike Milligan's 'Hitler: My part in his downfall' – without the humour.

Not so with Peter Brown, however. He stands among a handful of activists from across the political spectrum whose contribution demanded a good biography; his natural reserve ensured it would only be posthumous. His was an adult life of political activism, national leader of the Liberal Party, AFRA, Five Freedoms Forum and others dedicated to the liberal cause, pioneer of resistance to 'blackspot' removals and of rural development, anonymous funder of good causes and deserving individuals, friend of Alan Paton, Chief Albert Luthuli and other luminaries, recipient of a decade of banning orders, and one of the most morally steadfast South Africans our country has produced.

Peter Brown is hardly a household name in South Africa, for which we are all poorer. He was the kind of man whose respect people wanted, because they instinctively felt it was hard to earn, and that it was won by doing, not talking. He had, as Cardo shows, very well-developed political instincts, combined with remarkable resolve, humour so dry it crackled, massive depths of empathy, a reluctance to judge, all tested by the litany of detention, banning and harassment meted out by the state. Unlike most white activists, he spoke fluent Zulu and Xhosa, and did much of his work in rural areas and townships.

Above all, Brown saw the overthrow of apartheid as more important than bashing the left, the favourite pastime of many liberals, and was deeply irritated with the hysterically anti-communist wing of the Liberal Party and, later in life, the increasingly conservative 'liberalism' of the South African Institute of Race Relations and some of the less liberal groups that emerged in the 1980s. Thrilled to vote in 1994, he derided the Democratic Party's 2004 election campaign as 'a mixture of bluster and nasty compromise' and noted that it had 'made a complete cock-up of its relations with the ANC', something it steadfastly continues to do.

So, is this the book that a man of Brown's calibre deserves? That isn't easy to answer. It is certainly a book worth reading, but inevitably is not without both strengths and weaknesses.

Firstly, Brown was old school – cold showers (in his case, in Drakensberg streams), gruff one-liners, stern resolve and public reserve made worse by 10 years of banning – not an easy man to write about. In many ways, we learn more about those around Brown (Paton in particular) through his observations about them than we do about Brown himself. Cardo would have had to work fairly hard to find a more difficult man to bring to life on the page.

Robert Frost once observed: "A liberal is a person whose interests aren't at stake at the moment." In Peter Brown's case that was not true – whether taking on the Nationalists in the 1960s, or Inkatha in the 1980s, commenting on the ANC in the 1990s, or supporting the expropriation of land and taxing the rich to fund a welfare state, his interests were very much at stake and at odds with his beliefs. Unfortunately, Cardo's explanation of Brown's transition from upper class Michaelhouse and Cambridge-educated polo player to liberal stalwart and later national figure is less than satisfying - 'The immediate reasons', Cardo tells us, 'are not entirely clear'.

Nonetheless, Cardo handles Brown gently, and with the respect the man commanded. Brown slowly, almost grudgingly, emerges from the pages. Cardo has an easy style – important in an over-long text that would have benefited from some judicious trimming (and a good proof read) – and his access to Brown's private papers as well as those of his correspondents allowed him to construct a decent narrative. Whether most readers will sit through all 300+ pages is questionable.

Cardo is extremely good at describing a lifelong liberal, and the multiple causes, organisations, colourful individuals, battles and feuds, friends and (mainly institutional) foes that made up both Peter Brown's political life. His personal life barely features. Cardo describes a different but parallel narrative to our current historical discourse that is dominated by the Congress movement. The ANC, the Communist Party, the left-leaning (white) Congress of Democrats, Umkhonto we Sizwe, Inkatha, the United Democratic Front, COSATU – all make brief appearances, but Cardo retains his focus on liberals and their organisations. And they deserve that attention, without question. This is possibly the most important contribution the book makes, reminding (or teaching) readers about the long, distinguished role of liberals in the anti-apartheid struggle, worthy in their own right and not merely by contrasting them with Congress; as well as describing some of the colourful, witty, stupid, self-satisfied, brilliant, weak, insightful, craven and downright bitchy characters that made up the liberal cadre.

That said, many liberals in South Africa remain self-pitying, and the book starts in that tone (thankfully, it manages to lose it after a few chapters). Cardo, Helen Zille's speech writer and former Director of Research at the Democratic Alliance, opens the prologue with Mandela's famous 1990 speech calling on his Natal supporters to throw their weapons into the sea, a speech in which he singled out Peter Brown (who was in the audience) as evidence of the contribution whites had made to the struggle … only to immediately follow it by repeating R W Johnson's asinine claim that only white communists were lauded post-liberation, while white liberals were being 'deliberately airbrushed from the historical canvas'. The entire biography describes how Brown nurtured precisely the set of values that triumphed in the negotiations and the Constitution-making process. Individual rights and freedoms, the rule of law, an independent judiciary, accountable government – all of these (and more) formed the core of Brown's values and are now South Africa's values. Air-brushing of a special type, perhaps.

As the text makes clear, Brown was really a social democrat - he supported affirmative

action, expropriation of land, a welfare state and higher taxes – today he would be playing on the left-wing of the ANC, and wouldn't even make the substitute's bench for our self-proclaimed liberal enclaves. Cardo sub-titled his biography 'The Liberal Struggle for South Africa' – if he had amended it to 'the struggle for a liberal South Africa' then he would be forced to say simply: 'we won'. Quite why liberals find it so difficult to publicly acknowledge their massive victory remains perplexing.

The early chapters of the book are somewhat slow, as is often the case in biographies. The chapters dealing with the Liberal Party are heavy-going for anyone familiar with the literature. We learn little new, if anything, and the text relies far too heavily on Randolph Vigne's account of the Party as if it were an authoritative text rather than a party history written by a party insider and far from insulated from the odd historical massage. Once Brown takes over the leadership of the Liberal Party the biography itself gets new life, and from the late 1950s onwards, Cardo's narrative is at its best. Brown's qualities and character dominate the narrative and Cardo's writing improves in tandem.

Brown judged people by their deeds rather than their speeches, proclamations or ideology. That was his strength. Cardo's text ends up mimicking his subject – he describes but works hard not to judge, an odd stance in a political biography. In part, this seems to be his historian's love of archives – the book is full of quotations from private letters in private (hopefully to-be-archived) collections, but there is an odd absence of scholarship. Cardo comes armed with a history doctorate from Cambridge, but the book bears scant evidence of engagement with the literature – critical or supportive – dealing with the tumultuous decades Brown lived through, with liberalism

This is a well-written book, about a truly great South African. Is it the book he deserved – yes, because it is so like Brown in style, provides a detailed description of each phase of his political life, and Cardo succeeds in teasing the man into life.

(for or against), with the Liberal Party, with the nature of the struggles being waged, with historiography, with the current tidal wave of memoirs, and so on. A narrow focus on (admittedly always exciting – to historians) private archives comes at the cost of not quite placing Brown or his work in a broader context.

Cardo also mimics Brown by preferring action and chronology over reflection or theorising. When he does so, such as his descriptions of the character of leading liberals, he is sure-footed. On the other hand, Cardo repeats the phrase "the common society", for example, more than a dozen times, but nowhere stops to ponder what it might mean, beyond Brown's 'a common people in a common place', which is not terribly enlightening. More engagement with the discourse, unpacking what it meant and what it could teach us now, rather than its mere regurgitation, would have added value.

Where new ventures are described, such as Brown's work in rural Natal, again the literature (much written by Cherryl Walker, who appears frequently in the latter stages of the book), is absent, which actually diminishes Brown's prescience. There is no bibliography or set of references for those wishing to delve further in the area. In short, the book seems to have been written in a bit of a rush, which is a pity.

But I am carping. This is a well-written book, about a truly great South African. Is it the book he deserved – yes, because it is so like Brown in style, provides a detailed description of each phase of his political life, and Cardo succeeds in teasing the man into life. For anyone – and they are legion – who does not know (or does not know enough) about Peter Brown's muscular liberal tradition, this will be a terrific introduction.

Why Africa is Poor

By John Luiz

In this important book Mills makes the argument that Africa is poor because its leaders have made that choice. In other words, bad public policy is a result of political expediency as leaders make choices in the interests of staying in power and retaining control. This is not an original idea, nor does Mills purport it to be, but it is presented in a very accessible manner which should make it a popular read. The state in Africa has been subjected to much scrutiny with the dominant view being that the African state is the quintessential representation of predatoriness and rent seeking. This school of thought argues that the post-colonial state in Africa was essentially derived from the colonial state. Chabal1 points out that the post-colonial state possessed all the formal powers and attributes of the colonial state but that it was not subject to the constraints of colonial political accountability. It was overwhelmingly the most powerful actor in the new political dispensation and as a result politics in Africa revolved around the control of the state. Coups, assassinations, violence and ethnic strife were all geared to capture state power. He maintains that 'In this respect, therefore, it is soft: weak in foundations, structurally deficient, without deep legitimacy and generally lacking the political means of its putative power over civil society.' In the fight for independence, nationalist movements did not question the nature of the colonial state, but rather fought to gain control over it. African politics is thus fundamentally about the struggle for supremacy between state and society. Civil society in contemporary Africa seeks to evade capture by the state and has turned to the politics of counter-hegemony. The state has attempted to gain power over civil society through cooptation, clientelism, patrimonialism and mass coercion. This competition between state and society has resulted in the further weakening of both, and the collapse of production. Of course the irony of this line of argument is that it invariably argues that these weak states must now execute profound and difficult reforms.

Nonetheless Mills argues that there is a golden opportunity now for African countries in the new flat world to compete on a more level playing field than ever before. This flat world (as coined by Friedman) is characterised by the frictionless movement of people, capital, services, technology and goods. However, there are questions as to whether globalisation really is making the world flat. Several prominent authors have argued the opposite, namely that globalisation actually concentrates wealth and labour, instead of spreading it out as the idea of a flat world might suggest. If we live in a world of diminishing returns, as standard economic theory would have us believe, then convergence between rich and poor countries should be possible, and indeed we have seen that happen in many parts of the world, especially in parts of Asia. However, there is a growing body of evidence which suggests that in this 'new' economy the forces of increasing (not decreasing) returns may be powerful. This is especially the case when it comes to education. What we see worldwide is increasing urbanisation, economic

agglomeration and the concentration of human capital in key locales, the opposite of what the 'world is flat' would suggest. Think of Route 128 around Boston, Silicon Valley, and the Technology Triangle in North Carolina. Or the hubs around Cambridge in the UK or Bangalore in India. In fact a world of increasing returns is bad news for Africa because it suggests that investing in human capital may lead to emigration to greener pastures as people seek higher returns in places where human capital is already more abundant.

Let me state upfront that I agree with most of the Mills book and indeed have written extensively on the subject myself but there are international political economy obstacles that are not given enough attention. Furthermore, the book could do more to differentiate Africa pre mid 1990s and thereafter as we have seen extraordinary economic growth rates in the past decade and whilst this is closely aligned with the commodity boom, we have also seen real structural changes and a

Foreign direct investment is now flowing into Africa not only for resource extraction but also, for the first time, to take advantage of African consumer spending power.

much more diversified growth than before. The rising middle income (more likely lower middle income) urban class is changing the landscape, and the performance of many South African retailers in Africa bears testimony to that. Foreign direct investment is now flowing into Africa not only for resource extraction but also, for the first time, to take advantage of African consumer spending power. This is an exciting development as it also changes the relationship between foreign capital and local communities which has not always been a positive one.

In chapter two Mills reviews several country case studies both in terms of successes and failures. He concludes that if there is a coherent model of economic growth which emerges from these examples, several principles can be identified as central to its success, including:

- Those states that have implemented more reforms have generally done better.
- War and conflict are bad for growth.
- The executive, and especially the chief executive (usually the president), has to embrace economic reform and make it a priority, establishing a high-powered team and granting them regular access to his or her office.
- Reforms are not about the apparently zero-sum relationship between state and market, but require both more state capacity and much more market freedom.
- Openness to the international economy is a sine qua non for growth.
- There is a need to align poverty reduction and growth strategies.
- Policy-makers have to take care not to confuse transitory wealth initiatives with long-term development policies and needs.
- Money is never the key problem – governance, government capacity, skills, and the right policy set are more important.
- Keeping ahead of the game in the global economy is not just about doing things differently, but also doing other, new things. There is the need for a comprehensive reform vision, from the top-down reaching to individual citizens.

The book pays a lot of attention to Rwanda, and surprisingly this country has done remarkably well since the genocide. Various competitiveness indexes, including those of the World Economic Forum and the World Bank, show the country jumping up these leagues through institutional reforms which have reduced bureaucracy and increased efficiencies. However, what is not explored is the cost at which this has been done, including a crackdown on political dissent. It raises the question as to whether economic

liberalism can thrive during the early stages of development of political liberalism. Indeed most of the Asian examples Mills points to reflect this, and this is a concern for those of us advocating that these go hand in hand.

The book concludes that Africa has several advantages which, with the right policies, can make globalisation work for it. These include:

- Demographics – Africa has a youthful population and is expected to double in the next 40 years whilst much of the rest of the world depopulates and ages.
- The rise of Asia has increased demand for commodities and also created niche opportunities for African players.
- Catch-up growth is easier, which implies that by getting the basics right that Africa can reap large rewards. He points to Botswana as an example, although critics could use the country as an example of the opposite. Here is a country which has done everything right and has benefited from its resources but still remains undiversified. It is too small a player, it is landlocked, and with a tiny population and low population density, its prospects are limited by being situated in Africa. How does the flat world apply to a model country like Botswana?

He ends the book by suggesting key tenets of an African competitiveness model:

- Ensuring the basics are in place
- Targeting specific sectors and multinationals including the use of incentives
- Embracing globalisation
- Liberalising access
- Aligning government, unions and business in a shared growth formula
- Tax and public service reform
- Keeping the currency competitive

I would agree with these, but would reflect on some of their contradictions and trade-offs which the book does not do. Just by example, how does one keep the currency competitive in an environment of the Dutch disease? He suggests sterilising inflows, but this comes at a cost which is often ignored. He advocates economic liberalisation but then suggests picking winners through targeting sectors with incentives. These are not major criticisms because they reflect the difficulties that liberal policy makers face, and indeed the Asian success stories of controlled liberalisation expose these contradictions.

This is an important book and is well written in the new style of this genre of personal anecdote and practical examples. It is not well embedded in theory but that is not its main purpose. What is does do is expose these debates to a much wider audience, and Mills should be commended for doing this.

NOTES

1   1994: 72-74

REVIEW

Stan Kahn taught Sociology at UCT and Wits, and between the two did research at the University of Natal. From the mid 1980's through to the early '90's he was the Executive Director of the Funda Centre in Soweto, after which he established a Consultancy, working predominantly with NGOs and foreign donors in the Public sector, especially in the health field.

The Long Shadow of Apartheid

By Stan Kahn

The South African Institute of Race Relations (SAIRR) has been researching and documenting the issue of race relations in South Africa since 1929, and frequently not in a manner which endears it to government. This eighty year history and tradition is taken another few steps forward by the publication of The Long Shadow of Apartheid – Race in South Africa since 1994.

In its Introduction, the book informs us that a 2001 SAIRR survey found that 'racism' and race relations was placed only ninth of thirteen issues of concern for respondents, way below unemployment and crime. There is also an acknowledgement that systematic, regular, studies of attitudes toward racial attitudes have been only spottily carried out since 1994. Academically this is a reflection that other issues and topics have crept up the priority listing for jobbing social scientists, it is certainly not, academically, the hot topic it was.

Or is it? Practically, when pressure builds up in some or other sector of our society, analysts imply that the 'race card' is one that's quite quickly and easily played. Be it in the realms of public policy, or justice, or education, it seems to swirl around, just below the surface in many of our current debates. It is a little like our distant cousin, the one with halitosis – the one that we all know and recognise but try to avoid talking to, or even about.

Following the Introduction there are chapters dealing with press reviews of various sectors which make up South African society. Starting with Inter-racial Violence, and working through Politics and the Courts, Business and Employment, Education, Sport, Opinion Polls, and ending with a General chapter which scrutinises the topics of the Media, Agriculture and land reform, the Equality courts, Crime, Poverty and economic inequality, HIV/AIDS, and Zimbabwe. Each of these chapters and sections end with a 'Conclusion', which assesses trends in respect of the topic of race and racism in that particular sector, since 1994. While these conclusions are largely amorphous – they smack a little of 'on-the-one-hand ... but on-the-other-hand' – the chapters and sections themselves paint broad-stroked pictures of the sectors, while summarising activities in the years since 1994. It is convenient to have these summaries collected in one document, refreshing our memories of the tortuous paths we have trod since our Uhuru, and how we have frequently walked on eggs over those paths. It is doing what the SAIRR does best: recording and presenting the complexity of South Africa, with nuance and historical understanding, using a liberal perspective.

Part two of the books records '... interviews that were held with significant opinion leaders of varying persuasions, drawn from politics, business, the media and academia.' The book's Introduction lists the respondents as well as outlining the topics on which they were questioned during the interviews. While a few of the interviews are the product of serious reflection on the topics interrogated, a number of them are just repeats of widely reported positions on those matters. Collectively they depict the diverse and fragmented

views on important topics which South Africans address on an ongoing basis, and which make living here the rich experience which it is. Some of the respondents have since died, and these interviews would have been some of their last public reflections on these important matters. This alone makes the book a worthwhile one to own.

The book is a current (up to early 2010) backward look at the last fifteen years or so. On the limited topics that it covers, it is more comprehensive than the SAIRR publication most readers would be familiar with, the Annual Survey. But historical readers of the Survey would have to wade through a shelf full of them to discern the trends laid out here. Parts One and Two may not relate as tightly to each other as they could, but this does not detract in a major way from another publication that we should be pleased the SAIRR has brought us.

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