Chapter ○ ○ ③ ○ ○ ○

Skills and Education

While schools cannot fix the ills of society, this should not lead us to dismiss their importance in countering the effects of poverty and inequality.
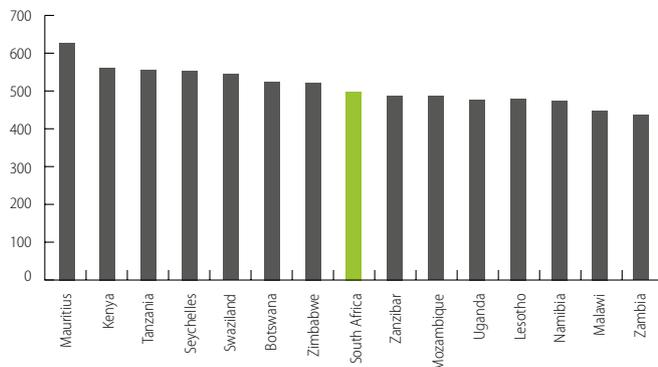
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Skills and Education at a Glance

An underperforming education system continues to be a major obstacle to increased employment in a labour market that is strongly skills-biased. At present less than 20 per cent of South Africa's labour force is in possession of a tertiary qualification (degree or certificate). Despite significant budget allocations (education still remains the single largest line of government expenditure), progress has been slow. While access to educational institutions has increased, the quality of outcomes remains disappointing, when compared to the country's emerging market peers, but also when measured against that of several other African states.

89%
Youth literacy rate for South Africa

LITERACY RATES

- ■ Total youth (15–24) literacy rate % 2004–2008*
- ■ Total adult literacy rate % 2005–2008*

Source: The State of the World's Children 2011, UNICEF, Tables 1 and 5

Note: * Data refer to the most recent year available during the period specified in the column heading.
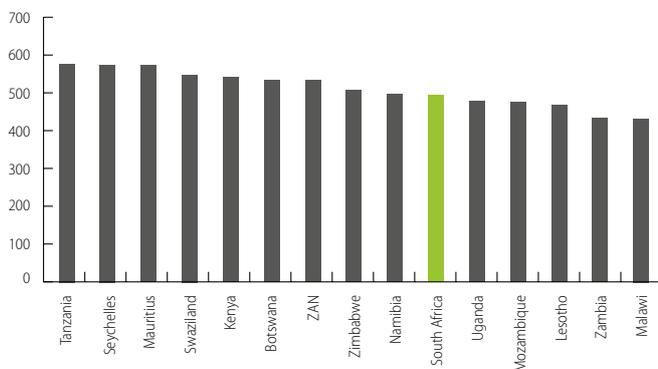
SACMECQ III DATA FOR MATHEMATICS AMONGST GRADE 6 STUDENTS

Source: SAQMEC Website: www.saqmec.org/downloads/sacmeqIII/WD01_SACMEQ_III_Results_Pupil_Achievement.pdf
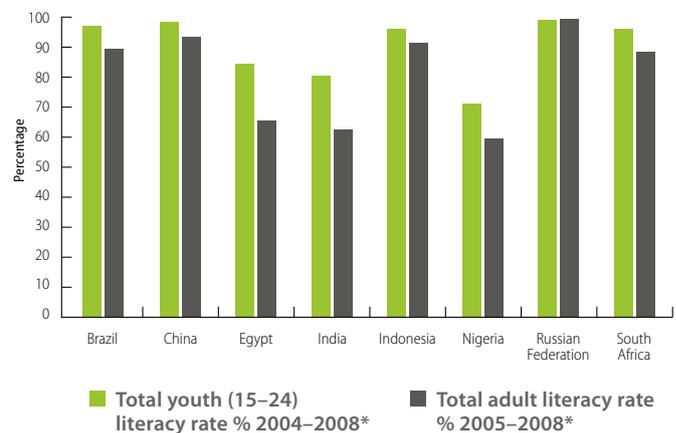
Note: SACMEQ stands for Southern and Eastern Africa Consortium for Monitoring Educational Quality; This is an African study done on Grade 6 students; SACMEQ III data were collected during the fourth quarter of 2007.

SACMECQ III DATA FOR READING AMONGST GRADE 6 STUDENTS

Source: The State of the World's Children 2011, UNICEF, Tables 1 and 5

| 2011 National Senior Certificate (NSC) results in perspective				
National performance	**2008**	**2009**	**2010**	**2011**
Number of candidates	533 561	552 073	537 543	496 090
Number of passes	334 239	334 716	364 147	348 117
Percentage of passes	62.6%	60.6%	67.8%	70.2%
Mathematics	**2008**	**2009**	**2010**	**2011**
Number of candidates	300 008	290 407	263 034	224 635
Number of passes (30% +)	136 184	133 505	124 749	104 033
Percentage of passes (30% +)	45.4%	46.0%	47.4%	46.3%
Physical sciences	**2008**	**2009**	**2010**	**2011**
Number of candidates	217 300	220 882	205 364	180 585
Number of passes (30% +)	119 206	81 356	98 260	96 441
Percentage of passes	54.9%	36.8%	47.8%	53.4%

Source: Department of Basic Education: Report on the National Senior Sertificate Examination 2011 – Technical Report

MEAN YEARS OF SCHOOLING OF ADULTS (25 AND OLDER)
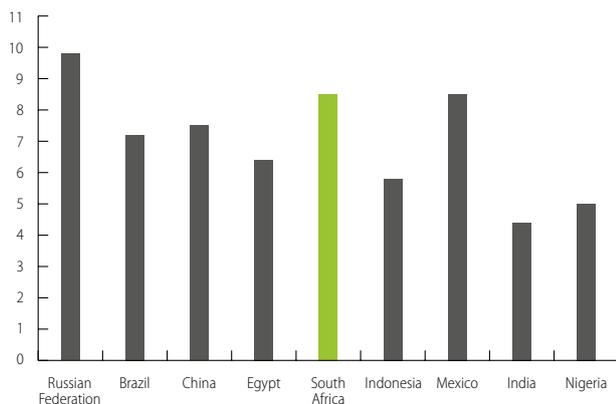
Source: UNDP 2011

EDUCATION OF EMPLOYED SOUTH AFRICANS BY RACE (AVERAGE NUMBER OF YEARS)
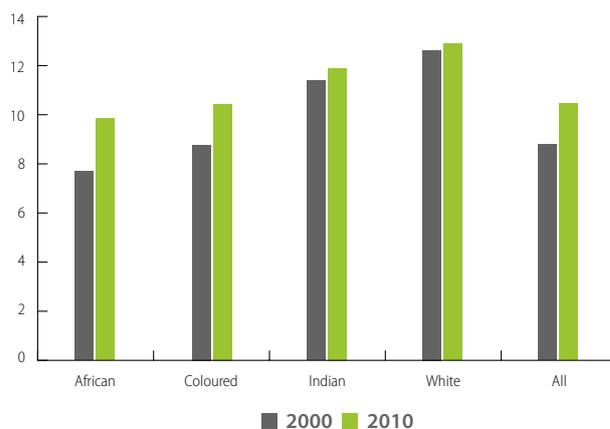
■ 2000   ■ 2010

Source: OHS 1995–1999, LFS 2000-2007, QLFS 2008–2010

EDUCATIONAL ATTAINMENT OF NARROW LABOUR FORCE

| 1995 | 2000 | 2005 | 2010 |

● None   ● Secondary   ● Matric and certificate or diploma
● Primary   ● Matric   ● Degree

Source: OHS 1995–1999, LFS 2000–2007, QLFS 2008–2010

Formal sector workers in highly skilled occupations				
	African	Coloured	Indian	White	National
2000	19.2%	18.8%	32.4%	50.1%	27.1%
2005	19.7%	21.4%	35.6%	50.1%	27.0%
2010	21.2%	28.9%	46.1%	60.2%	30.2%

Source: OHS 1995–1999, LFS 2000–2007, QLFS 2008–2010

30.2%

Proportion of employed South Africans in highly skilled occupations

REVIEW | The challenge of South African schooling: dimensions, targets and initiatives

Linda Chisholm

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The crisis in South African schooling is not new. It predates the achievement of democracy in 1994 and has been an ongoing refrain in public discourse since 1994. What is new is the emerging consensus on its dimensions and causes. Since the 1990s, both the government and donors have invested substantial resources in understanding what exactly the problems may be. The government has not been slow to respond to such findings, but in the welter of everyday crisis-talk, these responses have gone largely unnoticed and are rarely analysed and discussed. The resulting public debate is the poorer for it.

It is important to analyse these directions, however, and to understand them, as they form part of a wider palimpsest of debates and approaches not only in South Africa but also globally. The crisis discourse surrounding education and the policy approaches adopted locally resonate with international debates. The discourse is one of comparative learning performance and what to do about it. This article accordingly considers what some of the research informing government thinking shows on the dimensions and causes of the education quality challenge, what the government is doing about it, how it fits into broader international debates and what it means.

The challenges in schooling

Dimensions

The quality of education, linked to equity in the system, was identified as the main challenge facing South African education since the early 1990s. Its principal manifestation until recently was matric results. However, as international and provincial assessments of children's literacy and numeracy skills lower down in the system gathered momentum, so the full extent of the problem in South Africa was also laid bare through scholarly and popular syntheses and elaborations of the evidence relating to underperformance (Reddy 2006; Howie 2007; Howie & Plomp 2008; Fleisch 2008; Bloch 2009; Taylor & Yu 2009). Despite improvements in more equitable spending, relieving poor schools of fee burdens, introducing school nutrition, increasing the number of children attending Grade R classes, achieving near-universal enrolment in the compulsory phase of schooling and dramatically expanding the number of

qualified teachers in the system, learning outcomes are still abysmal by any measure (DBE 2011a).

Recent assessments provide ample evidence. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) and Southern African Development Community (SADC) collaboration in the form of the Southern and Eastern African Consortium for Monitoring Education Quality (SACMEQ) has enabled comparison of Grade 6 literacy and numeracy capabilities across the SADC region at two key points in 2000 and 2007 (see IIEP, UNESCO & SACMEQ 2011). South Africa does well on gender equality and a gradual reduction of its high repetition rates over the period, but there is no change in the overall trend for South African pupils' *reading* achievement and a negligible improvement in their *mathematics* achievement. South Africa performed below the SACMEQ mean in both reading and numeracy. South Africa also performed worse than other much poorer countries in the region, such as Swaziland and Tanzania (IIEP 2010). One of the most telling findings is the association between household poverty and learning achievement. As UNESCO pointed out in its analysis, 'children from the wealthiest households in South Africa are ten times as likely as children from the poorest households to score well on reading. This is more than double the comparable wealth differential for Namibia', which has a similar level of achievement to that of South Africa (UNESCO 2011: 87).

Most disturbing of all, however, have been the results of the education department's own annual national assessments (ANAs), first conducted in 2009 and again in 2011 (DBE 2011a). The tests were administered in all Grade 1–6 classes across the country, and the Human Sciences Research Council verified the results and conducted an analysis of learners' responses. The ANAs not only document and confirm the wide disparity in test scores between schools located in different socio-economic contexts, and progressive deterioration in results from Grades 1 to 6, but also provide insight into what children are getting wrong and, consequently, are not learning to do (DBE 2011b). The latter is instructive.

On the whole, children simply did not understand what they were being asked, even when they were responding in their home language. Handwriting, even beyond the Foundation

Phase, revealed a lack of writing practice. Children were unable to answer simple grammar questions, including spelling of commonly used words, the proper use of prepositions, plural forms, tenses and opposites. Reading comprehension was limited, as was the children's ability to write their own text from given prompts. A Joint Education Trust school-effectiveness study (see Taylor 2011) has provided similar in-depth information on reading. The study estimates that, on average, South African children perform writing of any kind in language classes once in about four days, despite the curriculum providing time for language teaching every day.

In the ANA numeracy tests, children were unable to perform basic numeracy operations, such as subtraction, multiplication and division, involving whole numbers. They had seriously limited or distorted conceptions of fractions and could not translate a problem given in words and write it in a way that enables them to solve the problem. Common mathematical misconceptions seem to be shared by teachers and students (Carnoy, Chisholm & Chilisa forthcoming; Taylor 2011).

Not surprisingly, in part as a consequence of such little learning, there are high repetition rates in the lower grades and high drop-out rates in the higher grades. So, although South Africa can be proud of its high enrolment and attendance rate, as well as the achievement of gender parity in enrolment and performance, its repetition rates are much higher than the international norm, especially among boys in the lower grades, and far fewer girls excel academically than should be the case (Motala & Dieltiens 2010). Over-age learners are much less likely to persist in school and much more likely to repeat and drop out. Such 'silent exclusions', where children are nominally enrolled but learn very little and are at risk of dropping out, are significant in the Western Cape, in particular, but learners across the country are affected (Lewin 2008; CREATE n.d; Gilmour & Soudien 2009; Lewin 2009; Meny-Gibert & Russell 2009). These access issues mask the deeper quality challenge of providing 'meaningful access' to learners.

For those who do survive to matric, the certificate is still their gateway to the labour market. Matric is now less of a gate-keeper than it was under apartheid: while the number of candidates increased from 518 225 in 1996 to 537 543 in 2010, the number of passes increased even more from 278 487 to 364 573 over the same period. The employment and earnings prospects for those with a matric remain higher than for those without and higher still for those with some form of tertiary education. It is even better for those with a matric and pro-

ficiency in English (Casale & Posel 2010). Of consistent concern has been the small numbers passing mathematics and science and qualifying for higher study in these subjects. From 2009, the old higher and standard grade distinction was phased out and mathematics literacy, a subject intended to provide basic mathematical skills to a broader range of students, replaced mathematics standard grade. The result was that many students who could be taking and passing mathematics at a higher level have tended to opt for mathematics literacy instead (Simkins 2010). Again, proficiency in English is a good predictor of success in the matric exam.

The cumulative consequence is that far too many learners are stigmatised as failures, leaving school without literacy and numeracy capabilities, and heading for unemployment and bare survival in a society and global world that thrives on and rewards high-level education and skills, knowledge and innovation. The hidden depths and dimensions of these lived realities and their underlying causes can be glimpsed through Jonathan Jansen's regular public interventions and riveting weekly column in *The Times* (Jansen 2011).

Reasons

Explanations and reasons pivot around whether such outcomes are seen as principally contextual or school-based. Government explanations tend to link poor results to school functionality. School functionality, in turn, is seen as the consequence of a variety of linked issues. The National Planning Commission (NPC) has summarised an emerging consensus that acknowledges the role of inequality and contextual factors but sees school and classroom-based issues as decisive in the functionality of a school and its results. School functionality is linked to a combination of leadership, management and administration, teaching, resourcing and support-related issues. Without dismissing all the factors that have a bearing on poor performance, the NPC's assessment is that 'the main problems in schools lie in teacher performance and school leadership' (NPC 2011: 15). The idea is that if a school is dysfunctional, its school leadership and classroom practice need attention, in the first instance. The view that a combination of factors rather one cause is necessary for a full explanation and understanding of the problem is borne out by analyses of the SACMEQ III results.

To understand why the education system reinforces current patterns of poverty and privilege instead of challenging them, Van der Berg (2011: 08) refers to a 'double burden' that

learners from poor communities in South Africa face – the burden of poverty and 'the burden of attending a school that still bears the scars of neglect and underfunding under the apartheid dispensation'. What matters in schools are the management of resources, the number of teachers and teacher quality, textbooks, classroom practices, discipline and management, assessment and feedback and home background. On resources, IDASA's Russell Wildeman goes so far as to say that while they are important, their availability and efficient use will not by themselves bridge the education quality gap in South Africa (Wildeman 2010). He, too, points to classroom factors as mattering most in learning outcomes.

Although education is the highest item of budgetary expenditure in South Africa, and per capita expenditure has increased substantially in both nominal and real terms since 1995, government expenditure on schooling as a percentage of the country's GDP declined from 4.9 per cent in 1995 to 4.1 per cent in 2009, and education's share of government expenditure declined from 22 per cent in 1996/97 to 17.7 per cent in 2009/10 (DBE 2011a). This is much less than, for example, Botswana, Kenya and Namibia spend on education. Thus, global spending allocations are not as extravagant as is often claimed. Even so, the annual auditor-general's provincial reports show significant under-spending and financial management challenges in several provinces (see PMG 2011). The availability of resources at school level has as much to do with household income as with how it is managed at provincial and school level, and with systems that militate against equity.

School leadership and teacher performance, as the NPC (2011) mentions, are critical in-school factors accounting for school functionality and literacy and numeracy achievements. Honing in on these issues, more specific analyses of teacher quality have linked it to what teachers know, their ability to convey complex concepts and ideas and their commitment and motivation to teaching, otherwise known as content and pedagogical-content knowledge. When they are unsure and unconfident of what they know and have to teach, teachers will then also be unlikely to teach it well, will avoid teaching those parts of the curriculum they find difficult and will seek to find ways of spending less time in the classroom (Carnoy et al. 2011; Taylor 2011).

The 'critical shortfall' of learners passing mathematics and science at higher levels seems to be linked to poor levels of teacher content and pedagogical-content knowledge, the small number of teachers who are actually able to teach these subjects, and the fact that many teachers qualified to teach scarce subjects do not actually teach them, while teachers not qualified to teach mathematics and science do teach these subjects (Paterson & Arends 2009; Simkins, Rule & Bernstein 2007; Simkins 2010). The issue of shortages is one of quantity and quality, across the system, and is part of a wider problem in the recruitment, retention, education and deployment of teachers faced in the system as a whole.

A link is also often made with the language of learning and teaching. Learners who are proficient in English are more successful in matric as well as later in the labour market (Casale & Posel 2010). This is something that schools and parents recognise and that results in their choosing English as the language of learning and teaching, even though home-language proficiency in the early years is critical for later success, and despite teachers' English proficiency being weaker than their home-language proficiency. Moreover, UMALUSI (the education quality-assurance council) has drawn attention to the fact that the issue in home-language teaching in African schools is that standards and expectations are low and that until this changes the transfer to English will be ineffective. The priority here, therefore, is improving home-language instruction, a matter principally of teacher education and resources. However, it is made more difficult when student-teachers do not take up bursaries to specialise in the teaching of home languages and when classrooms, especially in urban areas, have a variety of languages in them and a common language has to be found. The curriculum review of 2009 (DBE 2009) argued that the transition from home language in Grade 3 to English as a language of learning and teaching in many African schools in Grade 4 gave rise to learning difficulties that would be solved by starting with English in Grade 1, such that both the home language and English as the first additional language would be taught simultaneously. English would not substitute for the home language but would be taught alongside it.

The problem to be addressed, in the perspective sketched above, is located in the classroom and centres on classroom practice. Both contextual and school-based issues have a bearing on classroom practice, but it is seen as capable of change with the correct policies and strategies in place. In searching for reasons or underlying causes of the problem in South African schooling, the tendency is not to go for mono-causal but to favour complex yet focused explanations that enable key issues specific to classroom practice to be addressed.

What the government is doing about it
Dialogue, debate and participation

The dimensions and cluster of reasons discussed above all point to what needs to be done. There is no single, overarching

policy intervention that will solve all problems; a range of small changes across different areas relating specifically to the school-based factors, however, will make a big difference (Carnoy et al. 2011). In addition, an approach committed not only to improving learning outcomes but to social justice and democracy more broadly also requires 'processes of dialogue, consultation and debate' (Tikly 2011: 11) and a more substantial engagement with diversity in South African classrooms (Sayed & Ahmed 2011). The National Education Policy Act 27 of 1996 provides for consultative processes in the determination of national policy, and a national framework for inclusive education does exist. However, what are national commitments in practice?

In this respect, the role of the teacher unions has come under scrutiny. The NPC itself has acknowledged that educational issues 'cannot be fixed without the active participation and engagement of teachers, their unions and parents' (NPC 2011: 15). This is in line with the commitment by the ruling party to ensure that education becomes a 'societal issue,' an issue that engages, mobilises and harnesses all sectors of society towards addressing the crisis in education and improving teaching and learning in schools. When wage talks stalled in 2010 and the teacher unions went on strike at a critical juncture in the year for matriculants, national mobilisation in support of the matric class of that year was overwhelming. Supplementary tuition activities mushroomed and have continued in many cases. In this vision of learners being at the centre of a society-wide national educational effort, labour peace is considered preferable to labour conflict. Unions and government acting together is considered more beneficial to the overall goals of education than a showdown between them that can result in vitiating rounds of labour conflict.

In pursuance of education becoming 'a societal matter', a national Accord on Basic Education was launched in October 2011. The Accord is a partnership between the Department of Basic Education (DBE), business and organised labour. It is explicitly intended to mobilise support for schools in the light of the ANA results and their analysis to identify schools most in need of assistance (see DBE n.d.). While the government considers dialogue essential, there is evidence that unions, teachers and analysts do not think there is sufficient consultation and dialogue on key policies. Official forums and channels exist for such dialogue, but the time frames of research, consultation, policy and implementation frequently conflict and produce tensions, as evidenced in recent curriculum revision processes. Conflict and co-operation exist in tension with one another in a society and sector that is highly divided but increasingly focused and united on the key priority of improving classroom practice.

Dialogue, consultation, debate and participation go beyond dialogue between the government, business and unions and include the involvement of parents and other members of civil society. One of the aims of the ANA is to help parents understand better how their children are performing and how they can help them to improve. This is based on the perspective that lack of information constitutes a key blockage in the system, and providing such information will help the 'consumers of education' (parents) make demands on the 'producers' of education (teachers and principals) to improve the quality and supply of it. Here, the assumption is that education quality will improve only when the demand for and expectation of better quality education are higher than they are currently. This is a model that underestimates how social class works in education and schooling in South Africa; low levels of literacy among parents historically have tended to reinforce rather than help parents to challenge power differentials between themselves and school principals and teachers. Since the unintended consequences of education have a habit of undermining the good intentions, it is important to monitor and assess whether this aim is met or not and with what consequences.

Where projects have been undertaken independently to mobilise communities in the interests of education, they have resulted in the successful establishment of reading clubs, homework centres, matric catch-up classes and campaigns for school libraries (Kgobe 2011) as well as innovative projects that use 'mentoring as an alternative model for teacher training' (Bloch et al. 2011: 37). The Western Cape, especially, has been the site for numerous reading club initiatives, including the Vulindlela reading clubs and Learning-to-Read project, which trains volunteers to teach and assist with the teaching of reading in schools. Perhaps the most visible and successful of such mobilisation initiatives has been the NGO, Equal Education, which campaigns for school libraries and librarians, and conducts various forms of youth leadership training and educational programmes as a means not only of mobilising communities but of enabling youth and interested supporters to become active agents in their own educational and social development. Through its Bookery project, Equal Education has been able to start libraries in schools. Such projects can be no substitute for government responsibility but are a vital part of a democratic society in which citizens are also able to take the initiative to ensure the realisation of broader social and educational goals.

Diversity

Recognition of diversity is as central to South Africa's formal commitment to democracy as is its commitment to debate, dialogue, consultation and participation. Yet, policy activity in education, according to Sayed and Ahmed (2011: 111), 'suggests a failure to substantially address this link' between diversity, equity and quality. Classrooms in South Africa have become much more diverse than they were. Linguistic, race, class, culture and gender differences often compound the barriers to learning that learners face in classrooms. At least one province, KwaZulu-Natal, has made major strides in improving its results by placing an inclusive framework at the centre of its education implementation strategies. Thus, it can work.

> The message is going out that the expectations are higher than the outcomes that are being delivered, and that turning education around requires concrete plans and action from everyone at all levels in the system.

Nevertheless, despite the existence of national and provincial frameworks for inclusive education, many provinces, districts, principals and teachers are inadequately trained to recognise and address differences and specific needs. Research on the experience of migrants, for example, shows that regardless of policies, frameworks and curricular intentions, a lack of awareness of rights and xenophobic or discriminatory practices still prevail in many schools. This suggests a need for ongoing dialogue between researchers, teachers and policy-makers at national and provincial level to design appropriate interventions. Fataar (forthcoming) offers vivid insights into different learning dispositions that children bring to schools and the 'suppressions of learning' that occur in those spaces.

An approach to quality that takes diversity seriously might differentiate 'one-size-fits-all' policies that are generally framed in the interests of the middle class (Soudien 2004). It would support the approach popularised by the McKinsey report among policy-makers on *How the world's most improved school systems keep getting better* (Mourshed, Chijioke & Barber 2010). The report essentially argues for the principle of differentiated strategies for different schools and classrooms on the basis that all systems have different starting points and all can improve. By extension, an approach that takes diversity in the classroom seriously needs to think about structured teaching and learning strategies that take different starting points and experiences of learners in classrooms seriously. The issue is complex and requires careful attention.

Target-setting approach

Policies to redress inequalities in order to improve the quality of education have been central priorities since the mid-1990s. They have not produced the desired outcomes. Responding to the mounting evidence of implementation failure across a wide range of sectors, but education most importantly, the administration voted into office in 2009 not only made education 'an apex priority' but also introduced an intersectoral approach focused on target-setting, monitoring and evaluating the implementation of activities to enable the achievement of goals and targets. The approach of the DBE is informed by this broader governmental approach. The Minister of Basic Education has signed a delivery agreement to improve the quality of education. Her success will be measured by the achievement of national targets set for literacy and numeracy in Grades 3, 6 and 9 and for mathematics and science in matric. By 2014, it is expected that at least 60 per cent of learners in the early grades will be able to perform at the required level. Targets have been mapped for each province against their

ANA 2011 results, and provinces will set targets and design interventions for districts and schools.

The DBE has developed an Action Plan to 2014, which sets in place the priorities, strategies and activities to ensure achievement of the targets. Activities are organised around four themes: improving early childhood development; the quality of learning and teaching; undertaking regular assessments to track progress; and improving and ensuring a credible, outcomes-focused planning system. It identifies specific cross-cutting activities for the national, provincial and school levels to take up in accordance with constitutional responsibilities. The focus of the national department is on policies, frameworks, norms and standards, and monitoring and evaluation, whereas that of the provinces, is on actual implementation.

National and provincial alignment and co-ordination

The system is designed constitutionally to allow considerable decision-making and diversity of approach at provincial and local level. In effect, this has meant that while some provinces such as Gauteng, the Western Cape and, to some extent, KwaZulu-Natal have surged ahead in designing and implementing specific literacy and numeracy implementation strategies in line with the overall approach, others such as the Eastern Cape, Limpopo and Mpumalanga, with their more difficult inheritances, have been less successful. Thus, provincial and urban-rural inequalities are reinforced. The Eastern Cape is a case in point. Here, financial and administrative collapse of the provincial educational administration at the beginning of 2010 led to the establishment of a Cabinet-approved national intervention team consisting of representatives from several departments led by the DBE. It was their task to work with provincial counterparts to get systems back in place. However, the provincial authority mounted a successful legal challenge to the authority of the national department in the province, reaffirming a more limited role of the national team in addressing the crisis there. Thus, the tragedy of the Eastern Cape continues. At the time of writing, the South African Democratic Teachers' Union (SADTU) was threatening strike action during matric exams to effect removal of the Basic Education Superintendent-General in the province (see reports on the Eastern Cape to the Parliamentary Portfolio Committee, 23 March 2011; *Daily Dispatch* 15.09.11; *Daily Dispatch Online* 05.11.11).

The national department has vested considerable energy in seeking alignment and national co-ordination of provincial

initiatives so that they focus more equitably on the key priority of improving teaching and learning in the classroom. The main instrument for this has been the ANAs. Through the Council of Education Ministers and Heads of Education Departments, a methodology has been developed to assist all provincial and district officials and schools to analyse the results and to develop plans and strategies to address them. Leading by example, the national minister and deputy minister have visited poorly performing schools and districts across the provinces, checking scripts, providing feedback to schools on difficulties experienced by learners in the tests, meeting with regional-level principal and district bodies, motivating them to turn their schools around by setting realistic improvement targets and providing concrete suggestions for the kinds of improvement strategies to be adopted. In this way, the message is going out that the expectations are higher than the outcomes that are being delivered, and that turning education around requires concrete plans and action from everyone at all levels in the system.

Curriculum

Other national-level initiatives to support teaching and learning have included a continued focus on the strengthening of early childhood education curricula and teacher education, the streamlining of the national curriculum and assessment framework, new developments in teacher recruitment, education and development, the introduction of a national catalogue of textbooks and the development of 24 million Grade 1–6 workbooks for learners in 18 854 public primary schools. Successful curriculum implementation requires not only clear and accessible curricula, but also motivated, knowledgeable and well-qualified teachers, adequate teaching and learning support materials, appropriate district support and guidance and realistic implementation time frames. In line with the recommendations of a review committee (DBE 2009; see also *Curriculum News* 2010, 2011), the Curriculum and Assessment Policy Statements (CAPS) combine previously disparate documents and provide more detailed guidance to teachers on what is to be taught and assessed on a term-by-term basis. Implementation will be gradual and incremental, starting with the Foundation Phase in 2012. Provinces will continue to develop plans for the improvement of teaching home languages and the first additional language from Grade 1 and up.

Teacher recruitment, education, development and deployment

Improvements in teacher recruitment, education, development and deployment are critical to better teaching and learning. This is a function that is split between the DBE and the Department of Higher Education and Training (DHET). The DBE manages the recruitment of students intending to enter teaching, and provides in-service training to already-serving teachers, whereas the DHET manages the provision of teacher education. In order to address shortages, the Funza Lushaka bursary scheme was introduced in 2005. These bursaries specifically target students intending to become language, mathematics and science teachers, as well as those who intend to teach in the Foundation Phase. Bursaries are provided at all 23 institutions providing teacher training. The number of awards has risen from 5 447 in 2008 to 8 532 in 2011. The average value of a bursary is R52 700. Additional bursary opportunities are provided through provinces and the Education, Training and Development Practices Sector Education and Training Authority (ETDP SETA). More than 65 per cent of Funza Lushaka graduates are teaching in schools that serve poorer communities.

Despite teachers graduating in increasing numbers, the profession is still not attracting enough new teachers; consequently, the allocation to the Funza Lushaka fund for 2012 and 2013 has been increased by R220 million. In order to retain bursaried teachers in the system, the contractual obligations attached to the bursary have been increased and require that newly qualified teachers provide a minimum of four years of service. Should they default, they have to repay the bursary with interest. In addition, incentives are in place for teachers who teach in rural areas and hard-to-reach schools.

In 1994, 65 per cent of teachers had a matric plus a three-year qualification; 95 per cent of teachers are now so qualified (DBE 2011a). Teacher development is being provided at some 140 district teacher development centres. However, despite the improvement in qualifications and a long history of in-service teacher development, there seems to be little relationship to learning outcomes. Questions are raised, therefore, about the quality of teacher education and development programmes. A National Institute for Curriculum and Professional Development is being established to ensure, among other things, that content-rich, pedagogically sound short courses are in place that are aligned to the content frameworks of particular subjects and phases or specialist areas. Successful learning on these courses must enable teachers to improve their teaching practice.

In order to ensure that teacher education and development are oriented towards providing the knowledge and skills that teachers require to do their jobs well, the DHET has developed a policy on minimum requirements for teacher education qualifications. This is in accordance with the Strategic Planning Framework for Teacher Education (2011) developed by the department and teacher unions. The DBE, together with the Treasury, is also finalising a protocol in terms of which teacher unions will be able to provide for teacher development. Departmental training initiatives in 2011 focused on the redesign of roles and responsibilities of district officials to support the curriculum, as well as preparation of training frameworks for provinces to use in the implementation of the Curriculum and Assessment Policy Statements. A Mathematics and Science Strategy focuses specific attention on how to increase the numbers and improve the quality of teachers teaching mathematics and science.

> In a context where only 45 per cent of children in South African schools have sole use of a textbook, cheaply-produced yet attractive workbooks can play a supplementary role in boosting literacy and numeracy practices in schools.

Inefficiencies in the appointment and deployment of teachers that result in mismatches are a major focus of attention for the short to medium term.

Resources

Good resources are vital in all contexts, but are more so in schools and classrooms surrounded by poverty. Decentralised systems of textbook procurement introduced in the post-apartheid dispensation have not had equitable consequences, and have been expensive for the state. Each child still does not have a textbook and other necessary resources for each subject. In order to ensure that every learner has a text for every subject, the department has sought to improve equity and efficiency in the system. In line with the recommendations of the Curriculum Review Committee (DBE 2009), it developed a national catalogue for books to be used in Grades 1–3 in 2012. This catalogue recommends eight books in each subject (languages, mathematics and life skills) from which schools can choose. The intention of the catalogue is also to control pricing. The rapid introduction of the new approach led to considerable anxiety on the part of publishers and tensions between publishers and the department. After consultation with publishers, the system is being introduced more gradually for other grades. Such consultation and dialogue is ongoing and considers various aspects of the process.

Another controversial new development in 2011 was the department's initiative to provide learner workbooks to children in the poorest quintiles. In a context where only 45 per cent of children in South African schools have sole use of a textbook (IIEP 2010), cheaply-produced yet attractive workbooks can play a supplementary role in boosting literacy and numeracy practices in schools. The intention, accordingly, was to provide something where there is nothing and/or augment resources where they are limited. Although the principle of state development and distribution of learner workbooks has been welcomed, critics have had difficulties with the underlying conceptualisation of literacy acquisition, the perceived threat to the professionalism and autonomy of teachers embodied in the provision of texts to teachers, and the inefficiency in the delivery of the books to schools. The latter was due to gaps in information systems. This is another area where national and provincial alignment is being sought, as there is great variation in the quality of the learner and school information-gathering systems in provinces.

There is a long way to go in the development, use and distribution of workbooks. Workbooks on their own are unlikely to result in major learning improvements. They need to be supported by more extensive and linked teaching resources and broader reading, writing and numeracy practices that cut across home, community and school. Still, they are a small start that can make a difference alongside other small changes contributing towards a bigger reorientation in schools to focus on teaching, learning and providing better resources. Already, the department is responding to difficulties picked up in information systems and delivery, and in improving the content and presentation. The intended evaluation of the workbooks will no doubt generate important suggestions on how to improve their development, distribution and use.

Intended furniture and infrastructure improvements are now not only part of a national departmental initiative running alongside additional provincial infrastructure budgets, they are also a priority for the government as a whole, as Finance Minister Pravin Gordhan spelt out in his medium-term budget policy statement in October 2011. The backlogs are enormous and hugely varied, and the process requires careful planning for effective delivery. The Development Bank of Southern Africa has been appointed to improve existing structures, while the implementing agents for basic services are the Mvula Trust, the Independent Development Trust and Eskom. Their work should result in infrastructure maintenance and upgrades to schools, including windows, water, electricity, libraries and laboratories, as well as the replacement of mud structures and the building of new schools to keep pace with demand.

Accountability

Accountability in the system is being improved through a refocus on teaching and learning in the classroom and through the institutionalisation of performance contracts with managers across the system. In order to ensure that principals are indeed the instructional leaders they should be, new appointment procedures are in the process of being developed. The NPC plan proposes that only qualified people are appointed in school (and that there is no undue political or union interference), more teachers are trained and better trained, and test scores are used as accountability measures (Manuel 2011). Since 2010, principals and teachers have no longer been permitted to hold political office. The emphasis is firmly on ensuring that principals and teachers commit to their core task of instructional leadership. A bill for the formal establishment of the National Education and Evaluation Development Unit as a statutory body is scheduled for tabling in Parliament soon.

Conclusion

The achievements of the post-apartheid government in education are largely obliterated by persistently vast socio-economic inequalities, as well as inequalities in learning outcomes and the exceptionally weak literacy and numeracy results of learners in poor communities. The approach in basic education is informed, on the one hand, by the view that schools can make a difference in poor communities if they function as schools should, with all the essentials of good leadership, management, teaching, resourcing and support in place, and, on the other hand, by the performance and outcomes-oriented approach of the government as a whole. National targets have been set for improving learner perfor-mance, broken down at provincial and then individual school level, assessments have been conducted to identify weaknesses and areas for intervention, and strategies and activities have been designed with appropriate monitoring and evaluation processes to check progress.

Target-setting and performance-monitoring are common international tools, best known in the UNESCO Education For All (EFA) and Millennium Development Goals (MDGs) initiatives. These have had both strengths and limitations as strategies for intervention: while few analysts question the good that targets can do, there is now considerable knowledge about why and how they are not always achieved. In South Africa, many risks (including those relating to capacity, participation, agency and accountability) confront the implementation of all new activities.

Nonetheless, one of the greatest achievements in the last few years has been the mobilisation and rallying of significant sectors in society to a recognition of the depth and breadth of the challenge. The government, as one of these sectors, has acknowledged that there is a problem and has made a concerted effort to focus the work of everyone in the sector on improving literacy and numeracy. There is a plan that is being implemented and assessed. Pitfalls, weaknesses and unintended consequences there certainly are, but at least the building blocks are in place and there seems to be broad agreement on the overall direction being taken.

OPICION | Do uniform targets help to improve schooling outcomes?

BALANCED CRITERIA SHOULD REPLACE PERVERSE PASS-RATE INCENTIVES

Nick Taylor[1]

Indicators of any activity always serve a dual purpose. On the one hand, they are measures of performance; on the other, they set targets to aim for. The problem with indicators is that they are generally achievable in one of two ways: by improving performance or by taking a short cut. A good example of the latter approach is given by the twin brothers who each ran half the Comrades Marathon and were caught out only when a sharp-eyed official noticed that in one video sequence the runner was wearing his watch on the left arm and in a later sequence the runner with same number had his watch on the right arm.

Indicators of school quality are particularly problematic because schooling is such a complex activity and its quality, consequently, difficult to measure. A simplistic set of indicators is easier to manipulate than a well-designed set. At the same time, increasing the consequences of any set of indicators tends to increase pressure towards manipulation. For example, reports of schools and even whole districts in the United States cheating in the tests used to measure progress on the No Child Left Behind accountability system are increasing, while in South Africa system-wide manipulation of the National Senior Certificate (NSC) examinations is known to have occurred in the years 1999–2003.

Pass rate

The main measure of learning achievement in South Africa is the pass rate in the NSC examination at the end of Grade 12. However, this is an unreliable indicator of quality, which is strongly correlated with the number of candidates writing the examination, with the pass rate increasing when the number of candidates decreases and *vice versa*, as is clearly shown in Figure 3.2.1.

It makes sense that the smaller the numbers in Grade 12 classes the more individual attention teachers can provide and the higher the likelihood that students will pass; this will be particularly apparent if weaker candidates are excluded

from progressing to Grade 12 and from writing the exam. One way of manipulating pass rates, therefore, is to screen learners at the end of Grade 11. There is evidence that this is happening on a large scale, with a fall-off in school enrolment between Grades 11 and 12 of around one-third across the country. Take, for example, the cohort of students who entered Grade 10 in 2008 and wrote the NSC in 2010: of the one million Grade 10 students in 2008, only 54 per cent survived to Grade 12, and of the cohort who started Grade 10 in 2009, only 52 per cent made it to Grade 12 two years later (see Table 3.2.1).

Opportunity

A far more appropriate indicator of improvement in NSC results than the ubiquitously quoted pass rate would be the number of passes in absolute terms in relation to the population of 18-year-olds. There has been a steady increase in the number of learners passing in the last decade, growing from 249 831 to 364 513 (an increase of 46 per cent) over the period 1999–2010. The number passing matric as a proportion of 18-year-olds between 1990 and 2008 varies between 25 per cent and 35 per cent, a very low figure by international standards. However, the good news is that this proportion has been increasing steadily since 1999, a fact that cannot be explained by an increase in population, as population growth has remained essentially flat over this period.

Quality

Given the chronic underperformance of the South African system in comparison with many of our poorer neighbours, the highest priority should be given to improving educational quality. The quality of school outcomes depends essentially on learners' ability to analyse, describe and reason in natural and mathematical languages, in verbal and written forms. From this perspective, much obviously stands on how well the learner can speak, read and write in the language used as

medium of instruction. On this issue, the majority of South African learners suffer their greatest educational disadvantage, having to learn all their subjects in English, which for them is a second or even third language. It follows that one of the most important mechanisms for improving the quality of schooling for the greatest number would be to raise the standard of the language curricula and to improve the teaching and learning of all languages, especially the language of instruction. In this regard, the provisions in the new curriculum to be implemented in Grades 1–3 in 2012, which give greater weight to the learning of English as a subject from the very first year of schooling, are to be welcomed. At the high-school level, the fact that those who do not speak English as a home language are schooled in what is known as English First Additional Language (EFAL) is a major disadvantage. EFAL is pitched in a lower academic register than English Home Language (EHL) and, therefore, EFAL learners do not acquire as easily the linguistic resources needed to sustain sophisticated arguments in subjects such as history, biology and chemistry. Perhaps we should strive to move more schools and greater numbers of children onto the EHL curriculum and set the ratio of EHL to EFAL passes as one indicator of matric quality. Given the emotional nature of the language debate, this is likely to be a controversial proposal but, if we are serious about improving quality, one that the country needs to face.

Another indicator of quality is generally taken to be the number of students qualifying to register for a bachelor's degree at university, the highest grade of NSC pass. The number of candidates obtaining a bachelor's pass has shown a marked increase in the last three years, rising from 15 per cent of the cohort in 2007 to over 23 per cent in 2010 (see Table 3.2.2).

However, universities have expressed concern over the quality of bachelor-level passes since the introduction of the new NSC curriculum in 2008. These concerns are supported by the fact that there has been a significant fall-off in numbers taking the 'difficult' subjects of mathematics, science and accounting in the last two years (see Table 3.2.3).

Since all students are required to take either mathematics or mathematics literacy, an important quality indicator for the system would be the ratio of mathematics to mathematics literacy passes. Nearly 36 000 fewer candidates registered to write mathematics in 2010 compared with 2008, and nearly 9 000 fewer passed. Over the last three years, the proportion of students taking mathematics has declined from 56 per cent of the cohort to 49 per cent (see Table 3.2.4). This indicates that principals are directing students away from mathematics towards mathematics literacy, a practice that narrows student options for further study. This is a trick for making it easier to pass and, thereby, to increase the pass rate, but it is a cynical step that disadvantages both the student and the country.

It seems that while the numbers of students qualifying to enter university are increasing, the quality of these passes is declining, certainly in terms of numbers of candidates for

Figure 3.2.1: Enrolment, passes and pass rate, Senior Certificate, 1994–2010
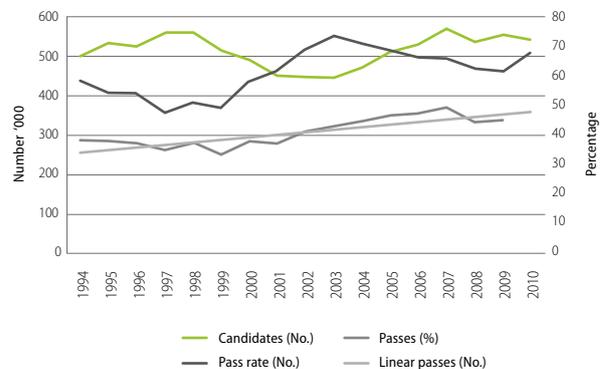
Source: DBE (2011a)

Table 3.2.1: Survival rates, Grades 10–12, 2008–2011

Year	Enrolment			Fall-off Grade 10–12	Per-centage lost	Per-centage survival
	Grade 10	Grade 11	Grade 12			
2008	1 076 527	902 752	595 216			
2009	1 017 341	881 661	602 278			
2010	1 039 762	841 815	579 384	497 143	46	54
2011	1 094 189	847 738	530 000	487 341	48	52

Source: Constructed from DBE (2010), DBE (2011a) and DBE (2011c)

Note: These figures do not take account of the many students who spend more than one year in any grade, and, therefore, give only a crude idea of survival rates.

Table 3.2.2: Bachelor-level NSC passes, 2003–2010

Year	Bachelor's pass	Bachelor's pass (%)
2003	82 010	18.6
2004	85 117	18.2
2005	86 531	17.0
2006	85 830	16.2
2007	85 454	15.1
2008	107 274	20.1
2009	109 697	19.9
2010	126 371	23.5

Source: DBE (2011a)

courses in mathematics, engineering, basic science, commerce and economics. This does not auger well for the government's plan to increase university enrolment sharply in the next five years. Not only should we be tracking numbers taking and passing mathematics in the NSC as a key systemic indicator, but we should also begin to measure the number of candidates who write the third mathematics paper, which deals with the tougher aspects of the subject and which is presently optional. Here, the universities should take the lead: for example, faculties of mathematics, statistics and engineering could set Paper 3 first as a 'recommendation for entry', and later as a requirement. In parallel, the DBE should measure and annually report on the proportion of students taking Paper 3.

Equity

An analysis of the examination results by race shows that, while Africans constitute nearly 83 per cent of NSC candidates, their low pass rate ensures that they make up only 77 per cent of passes. Furthermore, while two out of every three white children qualify for bachelor's entry, only one in five African children does. Of course, race remains strongly overlain by poverty, and the underlying problem of the figures shown in Table 3.2.5 is that it is poor children who continue to receive inferior schooling.

The same patterns are apparent in enrolments and passes in mathematics (Table 3.2.6). While the proportion of African candidates taking mathematics is surpassed only by Indian candidates, the pass rate in mathematics for Africans is less than half of that for Indians. Again, the underlying problem is poverty and the poor quality of schooling offered to children from poor homes.

The country does a lot better with respect to gender equity, a fact that places us well in advance of all developing countries on this indicator. Nevertheless, there remains room for improvement in increasing female participation and success in mathematics and science. Girl students are more numerous than boys at the top end of high school, because boys fail more frequently. However, although the participation rates of boys and girls in mathematics are comparable, female candidates do not perform as well as their male counterparts (see Table 3.2.7). While 50 per cent of male candidates passed mathematics with an aggregate of 30 per cent or more in 2009, this was the case for only about 42 per cent of females. Similarly, 33 per cent of boys passed at the 40 per cent mark, while only 26 per cent of girls did so.

Table 3.2.3: Candidates taking mathematics, physical science and accountancy, 2009–2010

Subject	Candidates		Difference	Percentage decrease
	2009	2010		
Mathematics	290 630	263 034	-27 596	9.5
Physical science	221 103	205 364	-15 739	7.1
Accounting	174 420	160 991	-13 429	7.7
Total	552 073	537 543	-14 530	2.6

Source: Reply to parliamentary question by Minister of Education, issued by Parliament, 11 May 2011

Table 3.2.4: Students taking mathematics in the NSC, 2008–2010

Year	Total NSC candidates	Mathematics candidates	Mathematics as percentage of total
2008	533 561	298 821	56.0
2009	552 073	290 407	52.6
2010	537 543	263 034	48.9

Source: DBE (2011a)

Table 3.2.5: NSC entry and passes by race

Race	Candidates as percentage of total	Pass rate	Bachelor's pass rate
African	82.7	63.2	18.3
Coloured	7.1	78.4	24.2
Indian	2.6	100.0	57.6
White	7.6	100.0	67.0

Source: DBE (2011a)

One of the most important mechanisms for improving the quality of schooling for the greatest number would be to raise the standard of the language curricula and to improve the teaching and learning of all languages, especially the language of instruction.

Conclusion

The progress of our school system towards providing quality education for all must be measured against a balanced set of indicators. Unfortunately, an exclusive focus on the pass rate provides perverse incentives for officials, principals and teachers to withhold opportunity by failing students in Grade 11 or insisting that they register as part-time candidates, and to compromise quality by moving them onto an easier subject set. We need to set ourselves more sophisticated indicators, in order to incentivise all actors in the system to improve the quality of teaching and learning, rather than to look for ways to play the system, at the expense of individual students and the country as a whole.

Opportunity should be measured by the proportion of 18-year-olds who gain a level-4 qualification. This need not necessarily be the NSC; as the country improves its FET college system and expands enrolment in that sector, the National Certificate (Vocational), which is equivalent to the matric obtained in schools, should grow and add to the proportion of young people with a level-4 qualification.

On the issue of quality, simply measuring the number of students who qualify to enter university can lead to a devaluation of this metric. A far more appropriate measure of quality is the proportion of matriculants with mathematics. More controversially, I would suggest that the proportion who take English at the Home Language level will serve as an even more important indicator of the standard of the NSC.

Regarding equity, we should move increasingly to tracking the performance of poor children in the system, the overwhelming majority of whom attend schools formerly reserved for Africans. As the country slowly deracialises its school system, poverty must replace race as the standard against which equity is measured.

Finally, the pass rate is an effective measure of efficiency, but only once indicators of opportunity, quality and equity have been computed.

Notes

1. This paper draws heavily on DBE (2011a) *Macro-indicator trends in schooling: Summary report 2011.*

Table 3.2.6: NSC entry and passes in mathematics by race

Race	Mathematics candidates as percentage of total candidates	Passed ≥ 30% (percentage)	Passed ≥ 40% (percentage)
African	50.3	41.0	24.0
Coloured	27.9	62.5	42.0
Indian	58.8	86.5	73.7
White	48.4	95.1	85.9

Source: DBE (2011a)

Table 3.2.7: Mathematics participation and success rates by gender, 2009

Gender	Mathematics participation (percentage)	Passed ≥ 30% (percentage)	Passed ≥ 40% (percentage)
Female	48.8	42.4	26.3
Male	49.1	50.2	33.0

Source: DBE (2011a)

BEWARE OF THE MISLEADING MEANS AND MEASURES

Russell Wildeman

Is the publication of public schools' performance data a desirable way to extract accountability from public institutions and promote choice in the selection of schools for our children? On the basis of available statistical evidence and the need to find fairer measures to judge schools' performance, it is argued here that school league tables provide misleading information about school quality to administrators and parents. Furthermore, it is suggested that in spite of strong external pressures to adopt performance measures in South African schools, the government would be far better served by focusing on other quality-enhancing approaches with higher international success rates.

This article firstly examines the case for the use of performance information, especially school league tables. School league tables rank schools on the basis of their learners' performance in routine examinations or, in some instances, on the results of standardised language and mathematics tests. Although different criteria can be used for ranking schools, usually a school's mean outcome on a subject is compared to its predicted outcome (controlling for a range of variables, of course) and the difference is viewed as an 'effect' of the school, hence the term 'school effects'.[1] Schools are then ranked according to the magnitude of their effects. Thereafter, the article reviews arguments and evidence against the use of school league tables as an accountability tool. The arguments for and against the publication of school league tables are then considered in the context of present debates in the education sector. Given the need for some information to gauge progress in schools, a compromise position is discussed, after which concluding thoughts are offered on the use of performance information in promoting school quality.

The case for performance information in schools

The call for comparative performance benchmarking has often been based on the perception that education standards are declining, do not exist or are variable across the schooling system. Inevitably, the incessant preoccupation with the way modern societies spend scarce government resources is related to the concern about educational standards. Proponents of public performance measures or school league tables argue that governments' resources agendas are removed from the reality of schooling, and that schools and education admini-

stration are not given any incentives to preserve or better utilise financial and non-financial resources. The same argument holds that schools are given no concrete, minimum educational standards to achieve and that this organisational practice is outdated and contributes to negative social and economic outcomes in society. Measurement of performance is seen, therefore, as a viable way to tackle the performance gap in schools, designate role expectations for those who are responsible for results (teachers, principals and administrations), devise school improvement targets, monitor such targets and take action against schools that show no visible signs of improvement. In some parts of the developed world, where such practices still exist, institutional targets are based on student performance in standardised tests of verbal (language) and numerical (mathematics) reasoning. Although the performance of individual students is measured, such results are aggregated to the institutional level and then compared to schools that have a similar schooling profile (socio-economic characteristics and school resources).

In the United Kingdom (UK), these results are published, and parents are encouraged to study and use them to make sound decisions about future schools for their children. Administrators, in turn, would use such data to make decisions about so-called 'outlying' schools, which require dedicated support and turn-around strategies. At the start of the implementation of school league tables in the UK, raw scores of students, aggregated to the school level, were used as comparative performance measures. However, pressure from academic researchers, whose work indicated that differences in results were in the main due to different learner intakes, forced the government to adopt 'value-added' measures, in terms of which the predicting equation includes measures of prior academic achievement as well as other individual attributes that predict performance. In this way, comparisons can be made between learners with similar profiles, but who attend different schools. By calculating average learning gains over each school's learner populations, the ground is prepared for statements about the relative effectiveness of schools.

Generally speaking, the value-added school effects were regarded as better and fairer estimates of schools' contributions, but academic researchers still insisted that uncertainty intervals be published for all estimated school effects. These intervals would enable users of the data to make better

> Using school league tables rewards affluent schools because of the clientele they are able to draw, and unfairly punishes poor schools because their learner populations are poor and educationally disadvantaged.

judgements about the relative precision of the school effects and whether school performance was sufficiently different to justify alternative choices. On the whole, most results reveal wide uncertainty intervals, which is indicative of the imprecision with which the effects (and hence overall quality) of schools are measured.

Those who oppose the publication and promotion of school league tables as an accountability and choice tool have put forward an impressive array of statistical evidence and appeals to notions of social equity and justice. The most notable counter-arguments are introduced and explained below.

The causal fallacy

Raudenbush (2004) makes the important point that one cannot establish school quality or claims of effective institutional practice merely by looking at the academic results of schools. In order to make such a claim, researchers must presume an intervention or treatment (managerial quality or teacher excellence) and assume that the effect of this treatment can be separated from other variables that are associated with academic outcomes. In survey research, the best that research-ers have been able to do thus far has been to identify those factors that most powerfully predict academic results. In this research, prior academic achievement has emerged as a strong predictive factor, whether it refers to individual learners' earlier cognitive achievements or to a context where learners with similar achievement levels are concentrated in certain schools (compositional effect). In fact, when this variable is controlled for, many of the differences in performance among schools in American and British samples disappear. This suggests that schools that do consistently well have access to the same quality intakes on an annual basis; as such, the results tell us more about their students (and their parents) than about the schools and their practices. In fact, there are complex effects operating in such schools, because, as some research has shown, teachers respond positively to such schooling contexts and learners, thus further implicating factors that are difficult to separate from each other. Theoretically, this process (or, actually, its inverse) operates in poor schools where learner and teacher expectations are lowered, leading to a mediocre academic climate, which, in turn, creates poor results. Using school league tables in such situations rewards affluent schools because of the clientele they are able to draw, and unfairly

punishes poor schools because their learner populations are poor and educationally disadvantaged.

Imprecision of measured school effects and instability of school effects over time

This article has already referred to the wide uncertainty intervals that surround estimates of school effects, thus indicating the lack of precision with which school effects have been measured. The reasons are statistically simple to explain. Trying to extract a lot of information from typical sample sizes (class sizes) of about 30 will not add much precision to the measures; yet, this is all we will ever have in trying to make inferences about whether some schools are better than other schools, or whether a particular school's performance falls below the benchmark for schools with similar socio-economic profiles.

Apart from the statistical imprecision with which school effects are measured, research has found relatively low correlations between different cohorts' outcomes. In other words, if we were to compare the results of a group of students now with those of a group that wrote the same tests a few years ago, the trend would be one of weakened correlations between cohort results the further apart the tests of the various cohorts were. This suggests that schooling effects (or performance), controlled for prior academic achievement and other relevant factors, are variable over time. Therefore, when parents need to choose a school for their children, they are likely to rely on present performance data (or ranking in a league table), while the results that ought to matter are an assumed level of performance of schools somewhere in the future (see Goldstein & Leckie 2008; Leckie & Goldstein 2009). Given the low correlations between school effects in different cohorts, school league tables undoubtedly provide mislead-ing and questionable information to parents who base their choice of school on simple league tables.

This point is very vividly illustrated by research that examined school performance in the UK over a three-year period (Thomas et al.1997). The rather low correlation between cohorts who wrote the examinations only two years apart (1990 and 1992) was particularly notable, thus further questioning the useful-ness of school ranking tables in assisting parents with choosing the 'right' school for their children (see Table 3.3.1).

> While schools cannot fix the ills of society, this should not lead us to dismiss their importance in countering the effects of poverty and inequality.

Longitudinal data and the introduction of fairer and non-punitive measures

In school effectiveness studies, consensus has emerged on the importance of longitudinal data in studying changes within and among schools. This has reduced the policy importance that is attached to results from cross-sectional surveys; yet, just about all the information that goes into school league table information is derived from one-shot, cross-sectional surveys. Arguably, the most interesting development from studies of change has been the focus placed on the *rate of learning* instead of mean achievement levels. In other words, when learners with similar academic profiles, but enrolled in different schools, are compared, what value does the school contribute to their academic achievement? Raudenbush (2004) calculated the correlations between two measures of school effectiveness, namely achievement levels and the rate of learning (value-added measure) from the same national survey. His strategy was to show how these two measures give different results and how high-poverty and low-poverty schools would be affected by each of the measures. Table 3.3.2 shows the results for Grades 8 and 10 on the science and mathematics results.

For Grade 10 mathematics, for example, ranking schools on mean achievement levels and on the rate of learning produces discordant results, as is manifested in the rather low correlation of 0.46. The same pattern is observed for Grade 8 mathematics, and even the slightly higher correlations for science do not support the view that these two measures capture the same performance dimension. Although value-added measures are far from perfect, they at least ameliorate some of the difficulties associated with mean performance measures. As Raudenbush indicates, if mean performance measures are used, most high-poverty schools would be regarded as failing, but when value-added measures are used (measuring learning gains from one year to the next), rich and poor schools contribute equally to the learning gains of their respective learner populations. These results demolish the myth that more learning happens at affluent schools and support the view of teachers in poor schools that their efforts go unrecognised because of the severe educational and social disadvantages of their learners. How does one reconcile such results with the reality in which rich schools consistently produce better results than schools serving poor learners? Learners have different cognitive entry points, and, therefore, in spite of the gains made by poor learners during high school, these uneven entry levels have a significant bearing on the final, unequal academic outcomes.

Table 3.3.1: Correlations across cohorts in a UK three-year study, 1990–1992

Subject	1990 cohort vs. 1991 cohort	1990 cohort vs. 1992 cohort	1991 cohort vs. 1992 cohort
English	0.86	0.40	0.77
Mathematics	0.59	0.56	0.83
Science	0.52	0.41	0.59
History	0.92	0.71	0.83
English literature	0.84	0.38	0.71
French	0.48	0.38	0.57

Source: Adapted from Thomas et al. (1997: 190)

Table 3.3.2: Correlation between mean achievement levels and value-added measures for Grades 8 and 10 (USA national data)

Subject	Grade 8	Grade 10
Science	0.78	0.67
Mathematics	0.59	0.46

Source: Adapted from Raudenbush (2004: 26)

There are two points worth noting. By focusing on the actual learning that takes place, researchers have posited a fairer and more equitable way of judging what schools do. This also has the effect of portraying teachers at working-class schools for what they are – hard-working professionals in the main, but clearly not magicians. The latest research suggests that in spite of valiant efforts by teachers at poor schools, the results of these schools are consistently lower than those of their richer counterparts. The important lesson we need to learn here is that while schools cannot fix the ills of society, this should not lead us to dismiss their importance in countering the effects of poverty and inequality.

Reliability versus validity in school performance measures

The point has been made above that average achievement levels, as an indicator of school quality, are problematic because such results are greatly affected by the social and economic composition of the school. Yet, it is just such a measure that is used in school league tables. Some consider it a less valid measure of school effectiveness than learning rates because schools have arguably more control over the rate at which learners amass new knowledge (Von Hippel 2009). However, while learning rates are regarded as more valid measures than school achievement levels, the latter are more reliable because they are less variable from one year to the next. Von Hippel makes the point that the gains in reliability that achievement levels have over learning rates are not large enough to offset poor validity. Ultimately, we should be measuring the actual contributions of schools and not promoting measures that blend and confound socio-economic advantage and school practices.

Schools are differentially effective

It is often assumed that a school that does well in one subject should be doing well in all subjects. However, recent research has shown that schools are differentially effective in at least two ways (see Yang & Woodhouse 2001; Lauder et al. 2010):

» Firstly, it is not certain that performance in one subject (or measure) necessarily translates into the same performance in all the school subjects offered. Thus, one-shot measures suffer from bias and may provide an incomplete picture of the effectiveness of schools.
» Secondly, some schools achieve better results for learners who have particular social and economic profiles, and, hence, it becomes problematic to use an omnibus performance measure to judge the overall effectiveness of a school.

Perverse behaviour as a result of the pressures of school league tables

If schools are rewarded for good test results, then there is very little to stop schools from 'engineering' good results. We have already seen ample evidence of this practice in South Africa, where learners routinely are asked to enrol as private candidates, learners are encouraged to take softer subject options, and Grade 11 hopefuls (who are considered risky prospects) are not promoted to Grade 12. This results orientation makes schools less likely to deal with problem cases arising from socio-economic deprivation, thereby further sliding schools into the 'win and produce results at all costs' syndrome. In any society with large socio-economic inequalities, the school league table and testing approach is likely to accentuate performance rifts and produce inequitable schooling outcomes.

Given the arguments for and against school league tables, we need to ask whether the present educational situation in South Africa is ripe for the acceptance and promotion of these blunt instruments. There is, firstly, a growing consensus that our schooling system fails to produce sufficient quality, as demonstrated by our low scores in international standardised tests. Whatever problems one may have with these inter-national and regional instruments, there is ample evidence to vindicate general concerns about the quality of our schooling system. Secondly, there is some appetite for school rankings, as manifested in the Sunday Times' Top 100 School Survey done in 2009 and academic research conducted shortly after the first democratic elections in 1994 (Crouch & Mabogoane 1998). While these attempts at ranking schools can be dismissed as lacking academic rigour, it is symptomatic of the growing clamour to measure and judge the overall perform-ance of schools. Thirdly, the Department of Basic Education (DBE) is under pressure to deliver an improving set of results at both the primary and high-school phases. This situation, coupled with forceful attacks by influential personalities on the perceived role of the South African Democratic Teachers' Union (SADTU) in the quality quagmire, means that the DBE will come under increasing pressure to provide performance information about individual schools. In short, the social and educational situation in the country makes the final push for the adoption of some performance measures in schools easier, and it is only a matter of time before the government enters this problematic and explosive arena. These developments are supported by the government's own attempts at develop-ing a system-wide monitoring and evaluation mechanism, and politicians' acceptance of an outcomes-based framework as per 'delivery agreements' with the president of the Republic of South Africa.

The consequences of adopting school league tables in South Africa are truly frightening. Already, we have significant competition for learners from advantaged backgrounds (academically and economically), and we know how this

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'creaming-off' process continues to devastate the talent pool at schools in poorer communities. If schools are under pressure to show incremental changes in annual assessments, this fighting over learners will become even more intense, with negative implications for poor schools. Furthermore, talented working-class learners will find it increasingly hard to enter schools that are focused on boosting their middle- and upper-middle-class clientele. None of these scenarios is far-fetched, because we know that South African schools eliminate learners with weaker potential to complete Grade 12, actively encourage risky learners to enter as private candidates, and practice an outdated concept of catchment areas to make sure 'undesirable' learners do not enter the system. Public school league tables, which have funding and reputational consequences, could only result in a race to the bottom in an environment that is already too competitive and deeply unequal.

While voices for quality, performance measurement and so-called accountability have become louder, other viewpoints that focus on equity and redress have been drowned out. If South Africa's unequal and entrenched socio-economic situation is predicted to remain the same in the next 20 years, then the Minister of Basic Education should ask the following questions. Are there examples of schools that consistently achieve high levels of academic performance *and* succeed in blunting or muting the relationship between socio-economic (dis)advantage and academic outcomes? How do we teach, manage, provide resources and create conditions that make this equity-realising scenario the focus of our education interventions in the next 20 years? By adopting these questions, the education authorities could shift the debate decisively away from the need to publish unfair and socially discriminatory school league tables to informing the nation on an annual basis how far we have come in producing greater equity in educational outcomes in our public schools. This strategy must not be promoted as optional; given the miserable recent history of the country, adopting a careful yet firm approach to the management of schooling quality, it should be a primary obligation. Instead of dividing constituencies, as is presently the nature of the discourse on quality, the education authorities should pull out all the stops to cement social cohesion among key role-players. However, they can only do so if they present a compelling vision of quality, equity and redress for the schooling system.

The question, nevertheless, remains whether any information about schools' performance should be provided to the public? We are, after all, at a moment in South Africa where the right of access to information is critical. It would be odd indeed if we were to marshal credible statistical and social justice arguments to block any positive information and feedback to schools. This article does not argue against providing information on the performance of schools, but it does suggest that misleading information – as is contained in school league tables – is just as bad as no information. However, it is entirely defensible to provide performance information to the relevant role-players (school management, parents, teachers and learners) and allow schooling communities and education authorities to develop acceptable improvement plans. Also, it must be understood, as Leckie and Goldstein (2009) argue, that information about how well one school does relative to other schools is but one piece of information, which should not be privileged above other equally valid pieces of information. The authors argue that if comparative school performance information is used with other accountability tools, then the circumscribed use of such information could be quite productive and empowering to schooling stakeholders. Hence, instead of promoting further socio-economic inequality, we should be encouraging improved functioning of school governance structures and better working relationships between district officials and local school governance structures. In instances where local school governance is weak, community stakeholders need to think beyond the confines of one school and adopt effective structures with a wider area/regional import.

What then is the way forward in forging a better connection between providing relevant performance information and affecting academic outcomes in a positive way? In my view, there are four things that the education authorities need to prioritise:

» The government should invest resources in strengthening the existing Education Management Information System (EMIS) and align the data-collection process with the targets agreed between the president, the premiers and their respective education ministers. EMIS units are understaffed, still do not attract professionals with the right skills, and do not understand their role in the quest for better-quality education. Ideally, a senior official should be appointed to head the EMIS unit, with this person reporting directly to the head of the department.
» The DBE should invest in high-quality education panel data or longitudinal studies. These data are critical for establishing the annual gains schools make, determining how the rate of learning is affected by school composition factors, identifying those factors that explain differential

learning rates within and between schools, and identifying schools that consistently achieve high academic outcomes (large intercepts) while moderating the relationship between (dis)advantage and outcomes (flatter slopes). The data should be made available to researchers in academia and civil society to stimulate healthy debate about school effectiveness and to develop context-specific benchmarks that could be used by schools and education authorities.

» The DBE should develop a policy that specifies minimum norms and standards around the kind of information that ought to be published on an annual basis. The purpose of such a document should be to promote access to quality education indicators and to empower all stakeholders to have an informed debate about the state of our public schools.

» Provincial education departments should be encouraged to develop reasonable estimates of schools' effects by using longitudinal data and tracking the average rates of learning over time. These authorities should also use cross-sectional data on average achievement levels and combine this with the longitudinal data estimates. Such comparative school information should be made available to stakeholders, but the education authorities must make it clear that the release of data to stakeholders is intended to inform school improvement plans. Both the DBE and provincial education authorities must analyse and monitor school improvement plans and results, and publish findings in their annual reports. The auditor-general must be requested to do a proper performance audit and to report to Parliament on whether our schools are making progress towards more quality and equitable outcomes.

What this debate shows is that in an attempt to right a wrong (fixing poor-quality education), advocates for quality education could act punitively against high-poverty schools and reward low-poverty schools, on the basis of school rankings in league tables. In doing so, they would make no contribution to solving real equity and educational problems, and merely reinforce an ingrained anti-poor attitude so pervasive in South Africa.

Notes

1. This way of calculating school effects is actually outmoded and relies on what methodologists call the means-on-means regression approach. Today, the standard way of calculating school effects is to take the average of the residuals of all learners in a school and pre-multiply this school residual by a shrinkage factor. The sample size of the school is critical in this calculation – the smaller the sample size, the more the calculation of the school effect relies on the population average (intercept) because the sample contains so little information. In these situations, the raw mean school residual is shrunk to the value of the population average. Conversely, the larger the school sample size, the smaller the shrinkage of the raw mean residual to the population average, which means that the raw mean residual and the calculated school effect would be almost identical.