Chapter 13
Equity Deferred: South African Schooling Two Decades into Democracy

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Introduction

Apartheid as a formal political system in South Africa lasted for just over four decades—from 1948, when the white National Party came to power, reaching an official end with the first democratically held elections of 1994. Apartheid was a formal policy of racial segregation and political and fiscal inequality that, brief as it was, rested on centuries of colonialism that had established the pattern of inequality in a less formal but nevertheless deeply ingrained manner. Consequently, the apartheid legacy casts a long and pernicious shadow over present attempts to construct a just and equal society in South Africa.

Nowhere were the inequities of South Africa's policies of racial discrimination more apparent than in the sphere of schooling. In the case of African children, provision occurred in geographical silos—in departments run by either the nominally "independent" homeland areas of Bophuthatswana, Transkei, Ciskei and Venda or the six self-governing territories. The rapidly growing cohorts of African children in the urban township were schooled by the Department of Education and Training. All other children were schooled by the national departments under the Houses of Assembly (whites), Representatives (coloured) or Delegates (Indian). Whereas access to schooling in the junior grades for African children was catered to (albeit inadequately), access to secondary schooling was restricted. At the height of the apartheid era, public spending on white children was around 5 times the amount spent on Africans, with per capita allocations for coloured and Indian pupils falling somewhere in between (Buckland and Fielding 1994; SAIRR 2011). Resistance to

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apartheid education became an obvious rallying point for resistance to apartheid in general.

Under the dual pressures of political opposition and demands from the public and private sectors for a literate workforce, the Nationalist government began belatedly but rapidly to expand access to secondary schooling for Africans in the early 1970s, especially in the urbanizing areas, paradoxically swelling the ranks of the articulate disenfranchised whose anger boiled over in the 1976 school riots with their epicenter in Soweto. Though on a political level, this undoubtedly paved the way for apartheid's demise, this rapid expansion of secondary schooling ran in advance of the capacity to run it efficiently, and a pattern of pre-university teacher qualifications became entrenched, which remains the norm to this day. Despite formal remuneration parity for all teachers by 1992 (Edupol 1993), less than 5% of teachers had university qualifications in their teaching subjects by 2006 (Reddy and Kanjee 2006, p. 110). The schooling system serving 80% of the population was thus built on weak foundations and continues to deliver poor-quality learning outcomes, despite nearly two decades of redistributive spending since the advent of democratic government.

In 1994, an improvement strategy was initiated, redistributing the budget toward the poorest provinces and toward historically disadvantaged schools. This included providing funding for daily meals in the poorest 50% of schools. Since 2006, the poorest two quintiles of schools have been classified as "no-fee schools," and this was later extended to include the third quintile (DBE 2011). Non-personnel spending is redistributive: public spending on the poorest fifth of schools is roughly six times higher than spending on the richest fifth of schools (van der Berg et al. 2011). As a result, recurrent per capita public spending today is higher for African than for white children, although schools in more affluent communities remain better resourced due to the practice of charging school fees (NPC 2011). Nevertheless, the country's per pupil expenditure, at USD 1383, compares favourably with that of the sub-Saharan African (USD 167) and Latin American (USD 614) averages (DBE 2011). South Africa's school system is relatively well financed when compared to those of the large majority of developing countries. Indeed, South Africa is usually classified as a middle-income country. Nonetheless, as the chapter illustrates below, its average comparative test scores continue to fall below the average of many of its lower-income regional neighbours[1].

[1] Since the focus in this chapter is on comparisons with other African countries where, TIMSS data aside, science outcome data is not available, we have not discussed science outcome data further below. For a reason that might yet require explanation, testing data in Africa have focused on literacy and mathematics, not on science.

Achievement Gaps

Until relatively recently, the only national attainment test written by South African learners has been the school-leaving "matriculation" examination at the end of grade 12. Since attainment on this examination is hardly a basis for international comparison, until the advent of international tests, educational authorities were unaware of the relative performance of South African learners and consequently had no tool to measure and compare the performance of the schooling system as a whole with that of comparable countries. The Third International Mathematics and Science Study (TIMSS), which ran international tests for grade-8 learners in 1995, 1999 and 2003, included South Africa from the outset (Mullis et al. 2000, 2004). South Africa did poorly in the first round in 1995, but because there were only two other African countries in the sample—Morocco and Tunisia—local comparisons were not available, and anyway, reforms had started in earnest only in 1998 with the introduction of an outcomes-based curriculum, so the education authorities were not unduly worried.

Poor performance of the country's school system first registered in a graphic way in 1999 with the results of the United Nations Educational, Scientific and Cultural Organization (UNESCO)-coordinated Monitoring Learning Achievement (MLA) study, which tested all grade-4 learners in numeracy and literacy in 18 African countries (Taylor et al. 2003). South Africa recorded mean country scores of 48 % for literacy and 30 % for numeracy (Chinapah et al. 2000; Chinapah 2003). It was a shock to find South Africa performing below all 17 other African countries, below even Botswana and impoverished Malawi, which scored 43 % for numeracy (Reddy and Kanjee 2006).

In addition to the MLA, South Africa has participated in seven cross-country comparative studies: the TIMSS (grade-8 mathematics and science, 1995, 1999, 2003 and 2011), Progress in International Reading Literacy (PIRLS) (grade-4 and grade-5 reading, 2006) and Southern and Eastern Africa Consortium for Monitoring Education Quality (SACMEQ) (grade-6 reading and mathematics, 2005 and 2007). The message coming from all these was unambiguous: the country performs poorly compared to many of its more impoverished neighbours, and very poorly in relation to developing countries in other parts of the world (Taylor et al. 2008). For example, in the round of SACMEQ testing conducted in 2000, of the 14 southern and eastern African countries participating, South Africa was placed ninth in both reading and mathematics. South Africa scores lower than a number of countries whose per capita gross national income (GNI) figures are around one-tenth of South Africa's figures. Matters are not getting better: results from the SACMEQ III exercise conducted in 2007 again place the country in the bottom half of the 15 African-country samples (SACMEQ 2011; Spaull 2011).

There is a thus an achievement gap between South Africa and seven SACMEQ countries, but the within-country gap is much larger. Poorer children receive schooling inferior to that of their more affluent peers. Disaggregating the 2007 SACMEQ results by poverty quartile, Spaull (2011) shows that for the wealthiest

Table 13.1 Mean literacy scores (3-year average) and mean SES by former education department: 2007–2009. (Source: Taylor forthcoming)

Former department	Mean literacy over 3 years	Mean SES[a]	Composition of sample	
			Observations	Percent
African (DET & homelands)	25.19	1.70	6776	80.8
Coloured (HOR)	39.12	2.97	880	10.5
Indian (HOD)[b]	43.86	2.81	108	1.3
White (HOA)	58.78	3.35	619	7.4
Total	29.16	1.95	8383	100.0

[a] A 5-point asset-based index of poverty was calculated, using data derived from pupil questionnaires
[b] Only four historically Indian schools were surveyed in the NSES, making this group too small to warrant meaningful analysis

25 % of students, South Africa ranks 4th out of 15 for reading.[2] However, when ranked by the performance of the poorest 25 % of students, South Africa ranks 14th out of 15 for reading. For mathematics, the figures are 6th out of 15 for wealthy students and 12th out of 15 for poor students. Thus, the average poor South African student performs worse at reading than the average poor Malawian or Mozambican student, in spite of the fact that the average poor South African student is less poor than the average poor Malawian or Mozambican student (van der Berg et al. 2011). Although the top end of the system is deracializing, with white pupils making up only 40 % of the population in former whites-only schools in 2010 (DBE 2011), the poorly performing bottom end continues to serve only impoverished African students.

The nature of the South African achievement gap is starkly illustrated by data from the National School Effectiveness Study (NSES), a longitudinal study that tracked a random national cohort of learners for 3 years, commencing in grade 3 in 2007 (Taylor et al. forthcoming). Table 13.1 shows that mean literacy scores for children in former African schools are less than half of those for white and black children in historically white schools.

Figure 13.1 shows how literacy scores on the same test for the NSES cohort of children changed in successive years. The three solid lines are for former African schools, and the three broken lines for former white schools. For both groups, the distribution of achievement improved with each year, but the distribution for grade-5 students in historically black schools was still considerably weaker than that of grade-3 students in historically white schools. It is clear that by the fifth grade the educational backlog experienced by children in poor and poorly performing schools is equivalent to well over 2 years worth of learning, when compared with their peers in better-performing schools.

[2] This itself is a noteworthy finding, showing that even the wealthiest quartile of SA schools is outperformed not only by Seychelles and Mauritius, which is to be expected given the higher SES of these island nations, but also by Tanzania, which, along with Malawi, has the poorest poverty rating in the sample (Hungi et al. 2010).

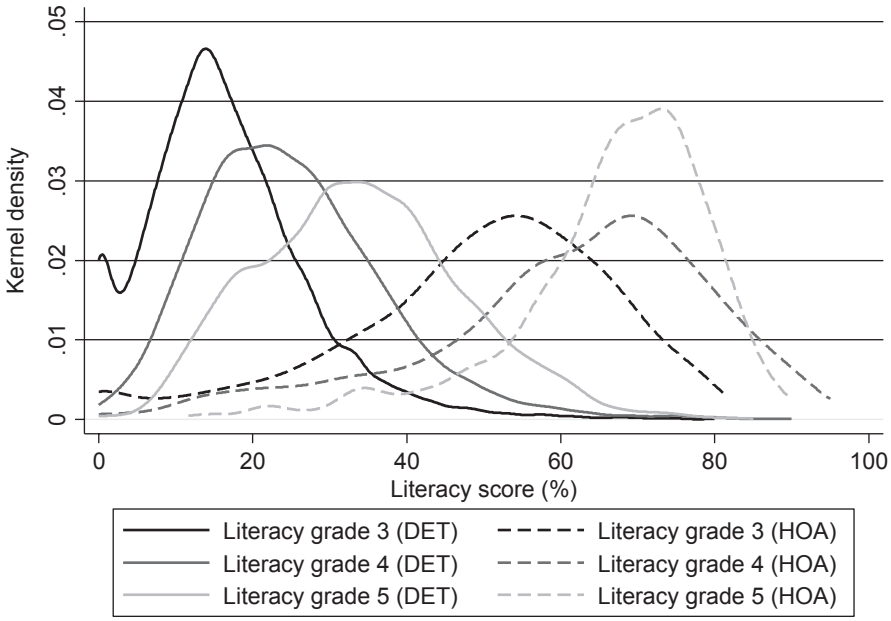

Fig. 13.1 Kernel density curves of grades 3, 4 and 5 literacy by ex-department. (Source: Taylor forthcoming)

The picture for numeracy is similar. Figure 13.2 differs from Fig. 13.1 in that the distributions for historically black schools are more widely spread and the distributions for historically white schools are more concentrated at the top end, evidently with little room for improvement with scores in 2007 already concentrated at the high end of the spectrum.

Thus, despite concerted effort since at least 1998:

- South Africa is lagging behind the rest of Africa.
- There are continuing large disparities in the outcomes produced by different kinds of schools linked to past racial affiliation. In other words, the few exceptions notwithstanding—and there are indeed striking if isolated exceptions—African learners stand a dramatically better chance of scholastic success, all things being equal, in a mixed (ex-white) school than in an African school.

In the next section, the chapter will examine some of the studies that have sought the roots for these continuing disparities, and we discuss some of the interventions based on their findings.

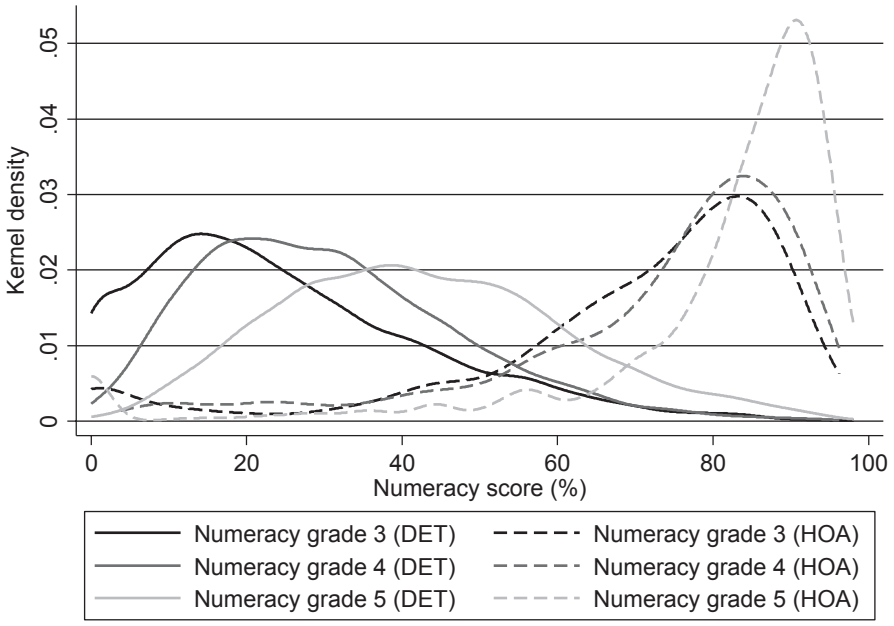

Fig. 13.2 Kernel density curves of grades 3, 4 and 5 numeracy by ex-department. (Source: Taylor forthcoming)

School Improvement Initiatives

Prior to 1994, school improvement was largely ignored by the government, with nongovernment bodies or organisations (NGOs), often with foreign donor funding, setting themselves in opposition to the apartheid state and striving to counter the ruling ideology by means of teacher in-service programs. Pupil-centred classrooms were seen as a route to democracy and liberation from apartheid schooling, which was identified with a repressive form of traditional schooling. These programs have a long history in South Africa, and many continue to exist alongside a host of interventions that have developed in the last two decades. In a survey conducted in 1995, 99 teacher in-service projects were recorded. One-third of the projects were found to have been the subject of evaluations of one or another kind, but only one used objective measures of learning outcomes to assess impact (Taylor 1995). Until the fall of apartheid, these programs were generally small in scale, and more often than not consisted of training for teachers in progressive teaching methods.

Although a number of studies had begun to describe the problems existing in schools serving poor communities (e.g., MacDonald 1990; Chick 1996; Muller 1989; Walker 1989), it was only when the report of the President's Education Initiative (PEI) was published in 1999 that these conditions gained public attention (Taylor and Vinjevold 1999). Although the report was a collation of findings from more than 30 small-scale qualitative studies, which therefore did not lend them-

selves to reliable generalisation, the findings have been confirmed by virtually all subsequent school- and classroom-focussed research (Hoadley 2010). The PEI described schools in which loose time-keeping practices, poor subject knowledge on the part of teachers, and infrequent reading and writing in class were ubiquitous. These studies were suggesting that the poor performance of the majority of schools required more than pedagogical reorientation of teachers. Nevertheless, many initiatives continued to focus on pedagogical issues, as the local corporate sector and international donor community began to take a serious interest in school improvement and launched several major programs (Taylor 2007).

The Imbewu project (1998–2001) was the first of these major donor-funded initiatives. Working in 523 rural schools in the Eastern Cape province, training for teachers and principals concentrated on the principles and methods of child-centred teaching and outcomes-based education, as defined by the new curriculum introduced in 1998. Perold (1999) found an enthusiastic response to Imbewu on the part of parents, principals and teachers. However, in a 3-year longitudinal study, Schollar (2001) concluded that, although changes in school management and classroom-teaching practices could be discerned, pupil tests revealed no learning gains in reading, writing or mathematics.

The *District Development and Support Project* (DDSP) (2000–2002) was the first initiative in South Africa based on a systemic school improvement design, which attempted to align curriculum, teaching and assessment through the coordination of activity at the levels of the classroom, school, and district offices (Taylor 2007). Working in 453 primary schools in the four poorest provinces, interventions sought to improve the operational efficiency of district offices and schools and to improve classroom teaching in language and mathematics through teacher training courses in subject content. Changes in test scores were recorded, and an analysis by Schollar (2006) concluded that these gains were associated with two measures: heightened expectations of improved test results and the introduction of support measures in the form of detailed specifications of the curriculum, pupil workbooks, item banks of exercises, and monitoring of classroom level activities.

The Quality Learning Project (QLP) (2000–2004) was an example of a systemic program at the high-school level. Working in 524 high schools selected by the nine provincial departments of education, the QLP delivered training and support programs aimed at achieving better management of districts and schools and improved classroom teaching. The Dinaledi project, working in 102 poor high schools across the country, was also structured as a systemic initiative and is driven by the national Department of Education for the first time. Training was provided, and materials were supplied to teachers and principals (Human 2003). Although both were designed in a broad outline as systemic initiatives, Dinaledi and QLP were very different in the details of their initial school profiles and are, therefore, not strictly comparable. However, both projects showed impressive average gains on the national school-leaving Senior Certificate (SC) examination compared with the national mean. However, at the same time, a high proportion of schools in each program benefited not at all from the respective interventions (Kanjee and Prinsloo 2005; Taylor 2007). In other words, there were measurable effects of the interven-

tions, but the improvement was not systemic; that is, it was not spread throughout the schools in the project.

With one exception (see below), this latter feature has proved to be an intractable problem besetting school improvement initiatives, none of which has been able to effect system-wide change in the sample of schools targeted for intervention. The source of this problem is at least twofold. First, the dosage of program interventions has been too light. Given the poor knowledge foundations of most South African teachers, interventions targeting the training of teachers will have to be far more intensive than the short workshops that have passed for developmental training if there is any hope of making a difference to teachers' conceptual understanding of their teaching subject. Second, although designed as systemic interventions in which program activities are linked with those of district officials, the large majority of South African district offices are staffed with officials whose knowledge resources are no stronger than those of teachers. Thus, districts are unable to effectively play their designated role in school improvement projects, or indeed in normal day-to-day support activities.

So far, then, alarmed at the continuing achievement gaps in South African schooling, the government has redirected funding to poor schools and equalised teacher salaries, and the private and international donor agencies have targeted teacher-upgrading initiatives by NGOs. None of these has made a measurable impact on the systemic features of the inequities. Something more was clearly called for.

Accountability Measures

Following the general election of 2009 and the splitting of the Department of Education into separate departments for schools (Department of Basic Education, or DBE) and further and higher education (Department of Higher Education and Training, or DHET), the DBE addressed the problem of poor school outcomes with renewed vigour. A number of the measures put in place were designed to strengthen the accountability of teachers and school leaders toward parents and pupils. Foremost among these is the Annual National Assessment (ANA) exercise, which consists of a set of tests in language and mathematics administered annually at grade levels 1 through 6. ANA has three principal goals: to signal to teachers what should be covered in the curriculum and how best to assess it; to measure the performance of the school system and how this changes over time; and to empower parents with important information about the performance of their own children and that of their school (DBE 2010, p. 10).

The first full administration of ANA occurred in 2011 and consisted of two components. The "universal" component was administered and scored by teachers themselves and applied to all learners in all primary schools. The "verification" component was applied at grade 6 in 1800 schools, where more rigorous moderation procedures were followed during administration, and test scripts were re-marked centrally after being marked by teachers. Below, we assess the extent to which each of these two components of the program is likely to achieve its goals.

Regarding the first goal of ANA, the DBE (2010) reports that during the 2-year pilot phase, evidence emerged that the ANA did assist teachers to employ better assessment practices in their classroom, by exposing them to well-constructed tests and marking memoranda, and also by encouraging district offices and provincial departments to review their own initiatives aimed at supporting teachers. From a theoretical perspective, the "universal ANA" would be expected to provide a valuable resource for teachers, being that it is designed as an assessment instrument *for learning*, to use Black and Wiliam's (1998) classic definition. The assessment theory thus supports the DBE's contention that the tests are likely to assist teachers to understand how good tests are constructed and to judge the standards required at the respective grade levels. The responses of their pupils to the test items also provide teachers with invaluable information on student learning and the effectiveness of their own teaching strategies.

However, whether any such improved knowledge and understanding on the part of teachers leads to improved teaching and learning is open to question. The experience of the Early Grade Reading Assessment (EGRA) initiative in Liberia is instructive in this regard (Piper and Korda 2010; Bruns et al. 2011). EGRA is an instrument for assessing early reading, and the Liberian study attempted to establish its effects on reading performance in grades 2 and 3, under conditions of high poverty and low school outcomes. Implementation of the program in 2008 consisted of two treatments. In the "light" version, the tests were administered and the results disseminated to schools and parents. This group also received teacher training in completing report cards, with instructions to complete and distribute them four times a year. The full intervention consisted of the "light" treatment plus intensive teacher training in reading instruction. In the "light" intervention, scores improved on only the lowest reading skill (letter fluency). The full treatment, on the other hand, effected highly significant improvements in all seven reading measures assessed by EGRA.

EGRA holds two important lessons for the ANA initiative and for school improvement generally. First, tests set externally and administered, scored and disseminated by teachers can be useful, but only when *combined with intensive teacher training*. Given the poor state of teachers' subject knowledge (see below), we might expect the same conditions to apply in South Africa. Second, improvement in both the full and light treatments was associated with improved mathematics scores, despite the fact that neither treatment included any reference to mathematics. Here too, classes whose teachers received the "full" treatment did better than those who experienced the "light" intervention. This second lesson gives support to the contention that *language proficiency is central* to making progress in all other subjects, including mathematics.

Regarding the second goal of ANA, in her Foreword to the report on the 2011 round of administration, the Minister of Basic Education states that the program is intended to monitor the improvement of the quality and levels of educational outcomes in the schooling system, toward the target of 60% achievement by 2014 (DBE 2010, p. 1). The "verification" component of ANA lends itself well to this systemic purpose, provided the tests are well constructed. Further, provided ad-

ministration, scoring and analysis are rigorously standardised, the results will be reliably comparable across schools and over time. Both provisos would need to be scrupulously fulfilled if the test scores are to enjoy any legitimacy in the eyes of a public that has become sceptical of the government's ability to improve school outcomes.

However, with respect to the third goal of the program—providing parents with information to hold schools and teachers accountable—the DBE is on less firm ground. Because the "universal ANA" tests are administered and scored by teachers with little done to standardise the process, this component cannot produce data that is reliable enough to be used comparatively. Under these conditions, the margins of error are too great to sustain credible comparisons. This feature precludes the use of "universal ANA" as a tool for "information for accountability" purposes, to use Bruns et al.'s (2011) term. Nevertheless, the DBE does envisage ANA being directed to such goals: "ANA can provide parents on the School Governing Body, as well as parents in general, with a better picture of the grades and subjects where special attention is needed. This can assist both efforts in the school and efforts in the home aimed at ensuring that learning occurs as it should" (DBE 2010 p. 11). This is at least arguable, and government would do well to heed the warning of Bruns et al. (2011), who caution against using metrics that are not widely regarded as providing valid, reliable and fair measures of school quality.

Furthermore, noting that most accountability schemes are of a recent provenance and that evidence for their medium-term effects and scalability is not yet available, Bruns and her colleagues speculate that gaming practices are likely to increase as teachers become acquainted with the rewards and sanctions associated with such programs and learn to exploit their loopholes. There is growing evidence that, where test results have high-stakes consequences for teachers or schools, scores are prone to perverse incentives, even cynical manipulation. For example, accounts of schools and districts in the USA cheating in the tests used to measure progress on the No Child Left Behind program are on the increase (Jacob and Levitt 2003; Ravitch 2010; Jonsson 2011; Ravitch 2011).

Test scores do offer the most objective information for holding schools accountable, but several conditions must be met for such programs to play a meaningful part in school improvement initiatives. In order to gain legitimacy, tests must be seen by the participating parties and the general public to be a valid metric of school quality; be administered, analysed and reported with technical efficiency; provide reliable evidence of school performance; be planned in consultation with teacher unions; and be recognised as fair in their application, with due regard paid to the poverty levels of the feeder community and the human and technical resources of the school. The National Senior Certificate (NSC) examination at the end of grade 12 has been used for many decades as a distributor of postschool opportunities into further and higher education and the labour market. The NSC can be said to possess a number of the conditions listed above, with the glaring exception of the last. But even here, the annual release of the results is often accompanied by criticism and controversy.

Table 13.2 Grade-6 teacher knowledge on literacy skills, SACMEQ III teacher test, 2007 (percent correct). (Source: Taylor and Taylor (forthcoming))

Processes of comprehension				
Retrieve info explicitly stated in text	Inferential reasoning	Interpretation	Evaluation	Total
75.06	55.21	36.61	39.73	62.99

It would be folly to assume that summative assessment exercises such as the NSC are not prone to manipulation. System-wide gaming of the process is known to have occurred in the years 1999–2003 (Umalusi 2004; Taylor 2009) in the wake of intense pressure from the then Minister of Education for the score profiles to show improvement. It is suspected that practices, such as the exclusion of high-risk candidates or advising candidates to register for easy subject options at the expense of mathematics and science, continue to be used by principals and teachers to improve school pass rates (Taylor 2011). Pressure to manipulate results is bound to be exacerbated should the stakes be raised, such as the scheme proposed by the province of KwaZulu/Natal to make school grants dependent on NSC scores (*Business Day*, April 4, 2011). In the public mind, school performance on the NSC is judged on pass rates, a statistic that is particularly easy to manipulate. The metric used in Brazil to rate the quality of school performance combines scores on the national *Provo Brasil* tests, with measures of student flow (grade progression, repetition, and graduation rates) (Bruns 2010; Bruns et al. 2011), thus discouraging the "culling" practice, which is apparently prevalent in South Africa.

Teacher Knowledge

Over the years, the supposition has been growing that a core feature of the achievement gap in South Africa is the low level of teacher competence, especially with regard to content subject knowledge, but because of teacher resistance, it has proved difficult to test this competence directly. The SACMEQ III[3] data provide the first opportunity to systematically assess the nature of the subject knowledge of 6-grade teachers. In the reading test (Table 13.2), South African teachers performed best on items requiring the retrieval of information stated explicitly in the text. Performance declined as soon as higher cognitive processes were invoked to answer a question. Good scores were recorded on items requiring straightforward inferences, but questions involving interpretation and evaluation were generally poorly done.

Similarly, the subject knowledge of the majority of South African grade-6 mathematics teachers is inadequate for effective teaching (Table 13.3). Although many

[3] The third round of the Southern and Eastern African Consortium for Monitoring Education Quality was conducted in grade-6 language and mathematics in 2007, where South Africa was one of 14 participating countries.

Table 13.3 Grade-6 teacher knowledge on mathematics skills, SACMEQ III teacher test, 2007 (percent correct). (Source: Taylor and Taylor (forthcoming))

Mathematical strand					
Arithmetic operations	Fractions, ratio and proportion	Algebraic logic	Rate of change	Space and shape	Total
67.15	49.68	46.51	42.30	56.44	52.39

of the items in the teacher test draw on knowledge not present in the primary school curriculum, it seems reasonable to suppose that it is through a good understanding of elementary algebraic reasoning and working with simple equations and graphs that teachers gain the background knowledge necessary to provide even young children with sound conceptual understanding in key topics such as proportional reasoning. Teacher performance on these items is poor and is not much better on a number of critically important topics specifically listed in the grade-6 curriculum.

If it is justified to generalize from the results of the SACMEQ lll test (see also Carnoy et al. 2012), then it seems plausible to infer that, without intensive training in the foundations of the subject of the sort usually provided at university, learning gains effected through the accountability measures currently being implemented by the DBE (if any appear at all) will reach a low ceiling in most schools, since (based on evidence of the SACMEQ lll test) teachers do not have the knowledge to teach key cognitive skills such as inferential and evaluative reasoning or the foundational mathematical concepts of number operations, fractions and ratio.

Teacher Training

The knowledge gaps described in Tables 13.2 and 13.3 continue to exist, despite the flood of teacher training programs in operation over the last two decades. For example, between 1990 and 2008, the proportion of South African teachers certified as "qualified" increased from 53 to 94.4% (DBE 2010), largely through the widespread provision of courses leading to an Accelerated Certificate in Education (ACE), a certificate at a pre-university degree level. The Department of Education acknowledged that the billions spent on in-service training from state funds over the last decade were not well spent:

> The fact that the cognitive performance of children remains low, even though qualifications have increased, casts some doubt on the importance of paper qualifications as a determinant of ultimate impact—at least in the way that the improvement of such qualifications has been implemented up to now.
> DOE 2009, p. 65

Regarding the initial training of teachers, the Higher Education Qualifications Council of the Council on Higher Education recently undertook a review of teacher qualifications. The review concluded that the quality of a substantial proportion of teacher education programs is questionable, with few meeting minimum standards

in the areas of program organisation, design, coordination and work-based learning. Also, the quality of staff, especially in postgraduate programs, was suboptimum in areas like staff development, research output and orientation of part-time staff. This was echoed by an evaluation of the ACE programs, which concluded that the majority of programs providing Accelerated Certificates in Education over the last decade have been of mediocre quality at best (CHE 2010).

It is clear, with respect to both initial teacher education and in-service training, that there is a gap between qualifications and subject expertise. In particular, it would seem that the majority of qualified teachers have serious shortcomings in their subject knowledge expertise. Although sound subject knowledge might not be a sufficient criterion for effective teaching, it is surely a prerequisite and, therefore, a minimum requirement for basic teaching competence.

South Africa is not the only country to exhibit the gap between qualifications and subject expertise described above. An interesting approach to addressing this problem can be found in Brazil, where the central government has instituted an exam, the *Exame Nacional de Ingresso na Carreira Docente*, for all new teacher candidates (Bruns 2010). The exam covers both content and pedagogy but is not required for existing teachers. Although taking the exam is binding on all new graduates who wish to enter the profession, the degree of decentralisation in Brazil ensures that states can choose to use the results in various ways. The example set by the national ministry has led two states, São Paulo and Minas Gerais, to put in place more rigorous, content-based tests that graduates must pass to gain entry into the profession. In São Paulo, tests of content mastery are also used to regulate the conversion of temporary teachers into permanent contracts. Furthermore, the Brazilian case is instructive with regard to schemes designed to reward teachers already in service for higher levels of knowledge. For example, in 2009, São Paulo adopted the *Prova de Promoção* to create a new, high-paid career track for top teachers; teachers gain entry to the new salary scale by passing a difficult test of content mastery (Bruns 2010).

These programs for improving content knowledge of both new and existing teachers are currently on trial in Brazil, and it is important that these be rigorously evaluated before transferable policy lessons can be drawn for other developing countries. In South Africa, with its strongly unionised and militant teacher body, it would be wise to await the results of the Latin American experiments, or at least to pilot such programs under local conditions, before going to scale with radical new approaches. However, the problem of poor teacher subject knowledge is severe, and systems change cannot be expected without improvement of this critical teaching resource.

Table 13.4 Literacy scores grade 3, Western Cape province. (Source: Constructed from Mourshed et al. (2010, p. 41))

	Poverty quintile				
	Q1	Q2	Q3	Q4	Q5
Scores 2004–2008 (percentage attaining 50%)	27–42	23–42	30–43	44–45	75–80
Gain (percentage point)	+25	+19	+13	-1	-5

Signs of Progress

The McKinsey report on 20 school systems that have registered sustained and widespread student outcome gains lists South Africa's Western Cape province[4] as having made a "promising start" (Mourshed et al. 2010). The evidence cited by McKinsey refers to steady gains in literacy scores at grades 3 and 6 since the province brought in system-wide testing in 2002. Furthermore, there was a dramatic reduction in variation across the poverty spectrum, as illustrated by the grade-3 scores in Table 13.4.

McKinsey leaves unexplained why grade-3 and grade-6 mathematics scores on the Western Cape tests failed to increase over the same period. Scores in literacy and mathematics in the SACMEQ tests between 2000 and 2007[5] similarly failed to increase. The most likely explanation for the lone literacy gains is that, to cater to the very wide range in performance across the population, a relatively large number of low-level items (word recognition) was included in the tests in order to ensure that scores for even the weakest students were registered. In 2010, acknowledging that the large majority of schools are now able to teach these elementary reading skills, the province changed the literacy tests to contain a larger proportion of intermediate and higher-level skills effectively bumping up the standard. The gains exhibited by the poorest schools in the province show that the most disadvantaged pupils now attain intermediate levels of reading proficiency, a very significant advance on the situation prior to 2002. McKinsey ascribes the reading progress exhibited by Western Cape schools to a package of interventions, including the dissemination of test scores to parents, engagement with low-scoring schools by district officials, supply of books to schools, mandating a daily reading period in schools, cash prizes for top performing schools in each quintile in each of the eight districts, and teacher training.

Though each of these elements of the package of reforms instituted by the province almost certainly played a part in the progress made in the last decade, evidence from an evaluation of the teacher development programs offered by the Cape Teaching and Leadership Institute (CTLI) in 2010 indicates that training could be a key element. These are block release courses of at least a week in duration. Substitutes

[4] The most highly developed of the country's nine provinces responsible for the administration of schools.

[5] The SACMEQ scores show a slight decline for the WC in both literacy and mathematics (SACMEQ 2011).

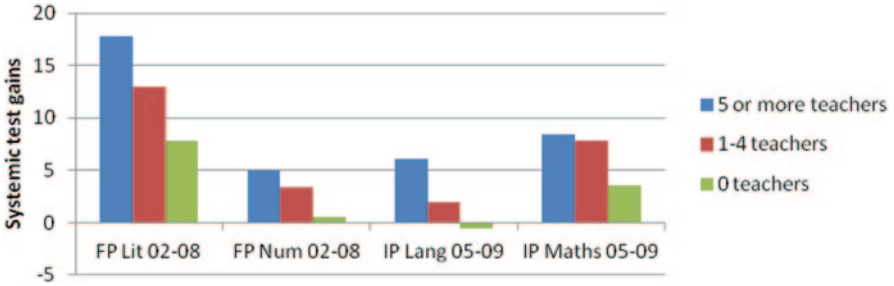

Fig. 13.3 Comparison of gains on Western Cape provincial tests, according to the number of teachers per school trained at CTLI between 2002 and 2009. Key: *FP* grade 3; *IP* grade 6. (Source: Dechaisemartin 2011)

are hired to replace teachers on course. Teachers spend the entire week in residence at the CTLI, where intensive training focuses on subject content. The evaluation concluded that gains on the annual provincial tests in both literacy and mathematics, at both grade-3 and grade-6 levels, are associated with increased numbers of teachers attending the program (Fig. 13.3).

The trends are clear: the greater the number of teachers from any one school attending CTLI training over the years, the greater the gain scores exhibited by the school on the provincial grade-3 and grade-6 literacy and numeracy tests. The effects are statistically significant, are substantial for foundation phase (FP) literacy and intermediate phase (IP) mathematics, and are smaller but still significant for FP numeracy and IP language. This suggests that *immersion courses of subject content* are a more effective model of in-service training than are either the ubiquitous workshop format adopted by NGO interventions or the training leading to ACE qualifications.

Conclusion: Elusive Equity or Equity Deferred?

In a well-balanced and sober assessment of the educational balance sheet in the early 2000s, Fiske and Ladd (2005) described how the new democratic government in South Africa had pursued the "equity imperative," only to find it elusive. This elusiveness is ascribed principally to three factors:

- The apartheid legacy, which had established geographical patterns of residence and patterns of affluence and poverty based on them, has proved incorrigibly enduring.
- The limited availability of financial and human resources.
- Political factors derived from the political settlement, which had awarded a certain decentralised independence to the provinces, rendering nationally driven reforms and standards difficult to enforce.

Fiske and Ladd concluded:

> An adequacy measure of equity need not require that whites and blacks exhibit similar outcomes. What it does require, though, is that outcomes for black students be raised to a minimum threshold that will equip them to function as workers and citizens in the new democratic era.… South Africa has not yet made either the social or educational investments that this standard would require. Overall, then, racial equity in education remains elusive. (Fiske and Ladd 2005 p. 233–234)

By this assessment, what is required is greater investment for elusive to become actual equity. This chapter has suggested that greater investments have indeed been made to little avail with respect to the achievement gap. The studies reported on suggest that the intervention that will best repay the investment will be investment in teacher training, both degree-level initial qualifications for entry into the teaching profession and intensive subject-content-based in-service training courses of durations of at least a week at a time.

Of course, this will not be the whole solution. We have not considered here the science achievement gap, nor the poor quality of leadership and management of the principals, district- and provincial-level staff. Indeed, a part of the solution must be to train at least the principals in sound curricular and financial management. However, the knowledge and competence of the teachers puts an *absolute cap* on the attainment levels of students, so that *a threshold level of subject competence is the first necessary condition for systemic improvement* in the South African system. Until this is done, it will be a case not of elusive equity but of equity deferred.

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