

Equity, Efficiency and the Development of South African Schools¹

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1. Introduction

Prior to the institution of South Africa's first democratic government in 1994, school improvement in the country was dominated by NGO projects, generally small in scale and focusing largely on teacher development; research was mainly qualitative, and funding supplied by corporate and international donors. Since 1994, the field of school improvement and effectiveness has become pluralized, with government entering the fray, and the introduction of a variety of programmes, including systemic and standards-based approaches. A range of research methods also appeared in the 1990s, with production-function analyses of the system, mixed method evaluations of intervention programmes and school effectiveness studies joining the small scale qualitative research which continued to accompany teacher development projects. As a result, research began to contribute significantly to the shaping of policy, and the delineation of two or more distinct subsystems comprising South Africa's school sector has spawned a differentiated approach to school improvement on the part of government and donors.

If schooling under apartheid was deliberately inequitable, and the first decade of democracy characterised by an undifferentiated drive for equity, then current developments can be said to be searching for more efficient ways of improving quality, particularly for poor children. Increasing the production of the school sector has been identified as a national priority in the fight against the twin problems of high and stubborn levels of social inequality, and the braking effect of an acute skills shortage on economic growth.

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2. Apartheid schooling, pre-1994: Opposition

2.1 Teacher- and school-focused programmes

Before the end of apartheid rule in 1994 school improvement was pre-eminently the domain of NGO activity, with non-government bodies setting themselves in opposition to the apartheid state and striving to counter the ruling ideology by means of teacher in-service programmes. Pupil-centred classrooms² were seen as a route to democracy and liberation, and their promotion became the prime focus of NGO activity in the education sector. These programmes have a long history in South Africa and many continue to exist alongside a host of interventions which have developed in the last two decades.

For many years research on these programmes was dominated by small-scale qualitative investigations into classroom processes, with impact evaluations being a recent development. Thus, 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 other kind, but only one used objective measures of learning outcomes to assess impact (where small but significant positive learning gains were noted in science) (Taylor, 1995).

Until the fall of apartheid, these programmes were generally small in scale, and more often than not consisted of subject-focused training for selected teachers in target schools. The Imbewu project (1998-2001), was the first large-scale initiative of this type in the country. 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 in the Curriculum 2005³ documents. Perold (1999)

² Pupil-centred methods are associated with what Bernstein (1996) called competence pedagogies, which assume a universal democracy of acquisition (all children are inherently competent and there are no deficits, only differences), are based on constructivist learning theories, and insist on high levels of professional discretion in matters of curriculum and assessment on the part of the teacher.

³ This was the new outcomes-based education curriculum adopted in 1996, which sought to implement a strong form of competence pedagogy in all public schools.

found an enthusiastic response to the programme on the part of parents, principals and teachers. In a three year longitudinal study, Schollar (2001) concluded that changes in school management and classroom teaching practices were effected by the programme, while pupil tests revealed no learning gains in reading, writing and mathematics.

3. The first decade of democracy, 1994 - 2003: Plurality

3.1 Standards-based accountability

Standards-based accountability (SBA), as exemplified by the No Child Left Behind programme in the US, has been adopted by many governments around the world (see, for example, Carnoy et al, 2003). The assumptions underlying this approach to school reform are: clearly defined standards, in the form of a common curriculum, set out what is to be learnt; state-wide or national tests assess the extent to which schools and pupils are achieving the standards; and rewards and sanctions accompany the results of the tests. SBA methods were applied by the SA government in the period 1999-03.

The grade 12 examination (Senior Certificate or matric) is the only system-level indicator of the school sector in SA. The intense public interest which accompanies publication of the results in December each year indicates both the high stakes involved, and the high levels of legitimacy accorded the Senior Certificate (SC) results by candidates, their parents and both the higher education sector and the labour market. Small wonder, then, that the steady decline in both the pass rate and the proportion of pupils attaining university exemption⁴ was greeted with great concern by the new government. While the number of candidates fluctuated between 450 000 and 550 000 over the period 1994 to 1999, the pass rate declined from the 58% to 49%, and the exemption rate dropped from 18% to 12% (see Table 1). This decline should not be surprising, given the thorough-going reorganisation of the entire school system following the change in government in 1994 and the inevitable destabilizing effect this had on schools. After the second general

⁴ Candidates who meet certain requirements qualify to apply to study at one of South Africa's universities.

election of 1999 government began to pay serious attention to the problem of declining SC results. The Minister of Education established a National Monitoring Forum, the aim of which was to co-ordinate improvement in the SC examination results (MoE, 2001, 2002). Each province was required to institute a SC improvement plan with a special focus on underperforming schools, defined as those which achieved pass rates in the 0-20% category. Collectively these measures constituted an SBA reform initiative. The results of these efforts were immediate, with pass and exemption rates showing a dramatic turnaround in 2000.

Table 1: Senior Certificate examination results, 1994-2005

	Candidates	Total Passes	Pass rate (%)	University Exemption	Exemption rate (%)
1994	495 408	287 343	58	88 497	18
1995	531 453	283 742	53	78 821	15
1996	518 032	278 958	54	79 768	15
1997	555 267	261 400	47	69 007	12
1998	552 384	272 488	49	69 856	13
1999	511 159	249 831	49	63 725	12
2000	489 941	283 294	58	68 626	14
2001	449 371	277 206	62	67 707	15
2002	471 309	324 752	69	75 048	16
2003	440 267	322 492	73	82 010	19
2004	467 985	330 717	71	85 117	18
2005	508 363	347 184	68	86 531	17

Source: DoE, 2004, 2005a, 2005b, 2005c

The effects of these SBA measures were not felt equally in all schools, although they did effect schools in all pass rate categories. However, it is not possible to tell to what extent these changes reflect quality improvements across the system as a whole, since it was subsequently established that not only did the standard of examination papers become easier over this period, but that procedures adopted during the moderation process further contributed to increasing pass rates (Umalusi, 2004).

Nevertheless, the results of the Education Action Zone (EAZ) programme in the province of Gauteng are instructive. The EAZ was adopted by the Gauteng Department of Education in 2000, as part of the province's response to the national SC improvement

programme. Seventy schools in the province which exhibited pass rates below 20% were targeted for a package of interventions. The EAZ was designed as a systemic initiative intended to include the monitoring of schools and the provision of support and training to principals, teachers and pupils. However, in reality, the programme did not fully meet its systemic intentions, focusing largely on accountability measures (Fleisch, 2006).

The EAZ achieved an impressive rise in SC results in targeted schools on a range of indicators: numbers of candidates passing at both higher and standard grades (HG, SG), overall pass rate, university exemption rate, and the numbers of A symbols achieved by pupils (80% or more on aggregate across all subjects). Not only were these results very impressive on their own, but the results of EAZ schools also increased relative to those of other schools in the province: thus, in the first two years the aggregate pass rate for project schools increased by an average of 14,5%, which exceeded the improvements shown by both other former DET⁵ schools in the province (up 10,1%), and all public schools in Gauteng (5,3%) (Fleisch, op cit).

Changes to standards of the SC examination make it impossible to estimate the size of the overall effect of SBA on the school system during the period 1999-03. Nevertheless, the fact that the improvements shown by EAZ schools exceeded those of comparable sub-categories of schools in the province, suggests that the pressure on schools created by standards-based approaches do result in more effective teaching and learning, and that the greater the pressure, the greater the gains.

3.2 Systemic⁶ school reform

⁵ Prior to 1994 the Department of Education and Training (DET) administered schools for African children in those parts of South Africa officially reserved for whites.

⁶ Although the terms 'systemic' and 'standards-based accountability' have been used synonymously (Supovitz and Taylor, 2005), we use the former in the sense defined by Smith and O'Day (1990), where systemic programmes are taken to include both accountability and support elements. Following Carnoy et al (2003) we use the term standards-based accountability to refer to programmes which include only accountability measures.

The main aim of comprehensive school reform is to link the macro and micro levels of educational practice so that they reinforce each other. This involves aligning curriculum, teaching and assessment through the co-ordination of activity at the levels of the classroom, the school, and the bureaucracy: in effect, this means combining the pressures characteristic of SBA approaches with the training and support offered by teacher- and school-focused programmes.

The District Development and Support Project (2000-2002) was the first initiative in SA based on a systemic design. Working in 453 primary schools in the four poorest provinces, interventions were directed at improving the functionality of districts and schools and improving classroom teaching in language and mathematics. Objective tests of pupil performance in literacy and numeracy at grade 3 level were conducted during each year of the programme, and again one year later. Significant changes were recorded, and these were holding steady a year after the closure of the DDSP, as shown in Table 2.

Table 2: DDSP scores for numeracy and literacy (HSRC, 2003)

<i>Subject</i>	<i>Mean %</i>			
	2000	2001	2002	2003
Numeracy	25.84	26.78	38.04	37.32
Literacy	52.58	50.23	57.22	56.01

While the gains exhibited by DDSP schools appear to be impressive, in the absence of control scores, the significance of these results is unclear. However, an analysis by Schollar (2006) concludes that, against the backdrop of training in mathematics and literacy provided to project schools throughout the life of the project, the gains were associated with two measures adopted in 2002: increased pressure, in the form of demands that test results improve, and the introduction of targeted support measures in the form of detailed specifications of the curriculum, pupil workbooks and item banks of exercises⁷.

⁷ In contrast to the competence approach (pupil-centred) which prevailed prior to 1994 and which lay at the heart of the new curriculum, these features are characteristic of what Bernstein (1996) termed performance pedagogies, which assume that learning is enhanced if teachers are allowed less autonomy with respect to curriculum matters and required to follow a common, structured programme.

The Quality Learning Project (QLP) (2000-2004) was an example of a systemic programme at the high school level. Working in 524 high schools selected by the nine provincial departments of education, the QLP delivered training and support programmes aimed at achieving better management of districts and schools and improved classroom teaching. A longitudinal evaluation (Khanjee and Prinsloo, 2005) found that QLP schools achieved significantly better results in the SC examination than both the national mean and a set of comparable control schools.

Table 3: Comparison of QLP SC results with the national mean, 2000-04 (Khanjee and Prinsloo, 2005)

	<i>Increase 2000 – 2004</i>								
	Passes		Exemptions		HG maths		SG maths		% Pass Change
	No	%	No	%	No	%	No	%	
Total QLP	4167	18.3	1182	34.8	585	152.3	8741	137.5	14.0
Total SA	47314	16.7	16493	24.0	8466	47.0	46512	58.0	12.8
<i>Difference*</i>		1.6		10.8		105.0		79.0	1.2

* Computed by subtracting the percentage gains on baseline scores exhibited by the national mean over the life of the project from those exhibited by QLP schools.

QLP schools showed improvement relative to control schools in a number of areas:

- In terms of school leadership and administration, planning and financial management improved in project schools, although the general level of management remained low.
- Two components of curriculum leadership at the school level also stood out: monitoring curriculum delivery and support to teachers.
- At the classroom level significant improvements were noted in the degree of curriculum coverage completed by QLP classes, teaching to the appropriate level of cognitive demand, and the quantities of reading, writing and homework undertaken.

Path analysis modelling revealed that QLP interventions affected the functioning of the system in districts, schools and classrooms, improving indices of functionality relative to those for control schools at all three levels. These improvements, in turn, were associated with improved learner performance. Most notable was the effect of language-across-the-curriculum interventions on the SC pass rate: the implication is that good reading and

writing skills are a prerequisite for good performance in all subjects and that intervening in this area can effect significant improvements in pupil performance.

The evaluation also noted that 13 of the 17 QLP districts were restructured during the life of the project, and that some of these experienced repeated restructuring events, one of them up to 5 times. These findings reflect a major problem inhibiting the full implementation of systemic reform initiatives in South Africa. Not only are the provincial and district level bureaucracies extremely weak – characterized by large numbers of vacant posts, poorly developed management systems and a paucity of essential resources, such as vehicles to visit schools – but many are in a more or less constant state of instability due to frequent restructuring and personnel changes. Restructuring invariably follows a change of senior management, with the new leader ordering a reshuffling of roles and responsibilities, along new lines of patronage.

Under these circumstances, programmes such as the DDSF and the QLP are systemic in design only: in reality schools are essentially on their own, with virtually no support or monitoring from districts. The point is emphasized by another finding of the QLP evaluation study: no learning gains were discernible in maths at grade 9 or 11 levels. The most likely explanation for this result, in the light of the very impressive improvements at SC level, is that, whereas intense pressure is put on schools to perform in the SC examinations, no monitoring is applied at lower levels of the system.

The Dinaledi project, working in 102 poor high schools across the country was also structured as a systemic initiative, driven from the national Department of Education. It appears that at least some provincial departments did intervene at the school level, but by and large there seems to have been little participation by the relevant district offices. Training was provided and materials supplied to teachers and principals (Human, 2003). Although no objective evaluation was conducted on Dinaledi, comparison with the national results show that project schools performed very much better than the mean on most indices.

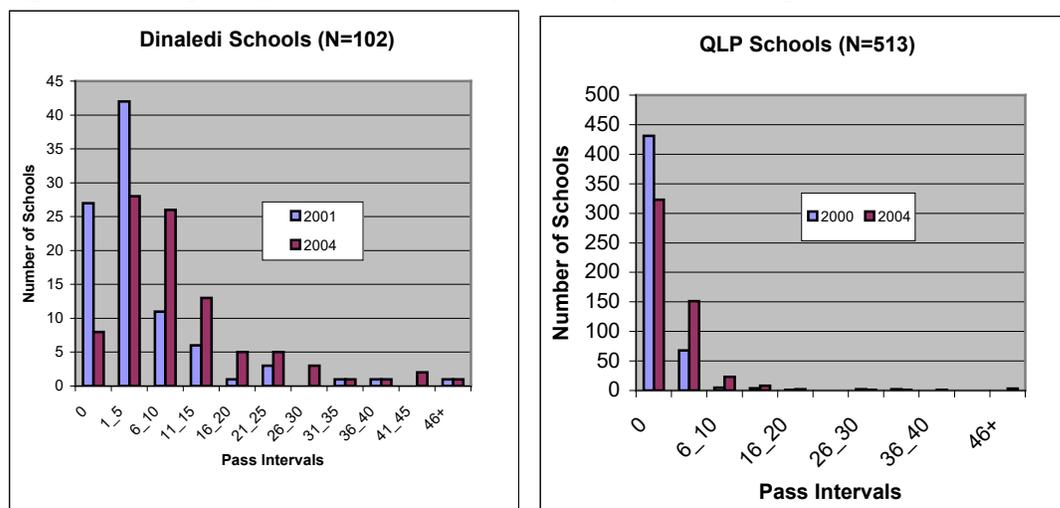
Table 4: Comparison of Dinaledi SC results with the national mean, 2001-04

Schools	Increase 2001 - 2004												% Pass Change
	Passes		Exemptions		HG Math		SG Math		HG Science		SG Science		
	No	%	No	%	No	%	No	%	No	%	No	%	
Total Dinaledi	876	10.4	613	29.7	476	94.6	484	14.6	467	64.4	44	1.8	3.6
Total SA	53511	19.3	16797	25.6	180	0.7	25691	26.3	-6063	-16.6	-6462	-7.8	9
Difference*		-8.9		4.1		93.9		11.7		81.0		9.8	-5.4

* Computed by subtracting the percentage gains on baseline scores exhibited by the national mean over the life of the project from those exhibited by Dinaledi schools.

While both were designed in 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, it is important to note that both, on average, showed impressive overall gains compared with the national mean, while at the same time a high proportion of schools in each programme benefited nothing from the respective intervention. The latter feature is shown in Figure 1, the most notable aspect of which is that in both cases a significant number of schools failed to produce a single pass in mathematics at the Higher Grade level after 4 or 5 years of intense intervention: such schools are impervious to the kinds of interventions applied to date by both the government and non-government sectors.

Figure 1: Frequency distribution of schools by maths HG passes, Dinaledi and QLP



3.3 Teacher and school focused programmes (continued)

In the meantime, the earlier generation of teacher development programmes continued, although systemic elements and a more structured approach to curriculum, pedagogy and assessment began to enter their designs. Thus Imbewu embarked on a second phase, where it was more closely embedded within the Eastern Cape Department of Education.

The Learning for Living project (2000 – 04), working in 898 primary schools across the 9 provinces was aimed at improving reading performance. The programme trained principals and teachers in the use of a cyclical set of reading and writing activities, visited classrooms to support and monitor the work of teachers, and saturated target schools with books and other reading materials. The first cohort of schools, which experienced the full 5 years of intervention, showed learning gains of 8,4 percentage points in reading and 5,3 points in writing when compared with a set of control schools. The evaluation concluded that these gains could be attributed to the intervention with a 95% level of confidence (Schollar, 2005).

3.4 Production-function analyses

In addition to the kinds of impact evaluations which accompanied programmes like Imbewu, and the Quality Learning and Learning for Living projects, a number of production-function studies also appeared during the first decade of democratic government. In the first instance, these confirmed what had been known in all other countries in which such studies had been undertaken since Coleman (1966): socio-economic factors have the largest influence on educational opportunity (Table 5).

Table 5: Social factors associated with improved learning (Taylor et al, 2003)

Factor	Thomas (1996)	Crouch & Mabogoane (2001)	Anderson et al (2001)	Simkins & Patterson (2002)	Van der Berg & Berger (2002)	Howie (2002)
Race		++	++	++	++	
Parental education	++		++		++	

Parental income		++			++	++
Settlement type						+
Family structure			+			
Gender			0	0		
Language				++		++

Key: ++ denotes strong positive correlation, + relatively weak positive correlation, 0 no significant difference; blank cells indicate that the study in question did not examine this factor.

On the question of resources outside the family, early South African production-function studies identified a number of generally weaker and sometimes contradictory relationships (Table 6), indicating that these factors are of less importance than socio-economic conditions in the home, but also suggesting that it is not only the presence of school resources but how these are used which contribute to learning differentials.

Table 6: Resource factors associated with improved learning (Taylor et al, 2003)

Factor	Crouch & Mabogoane (2001)	Case and Deaton (1999)	Case and Yogo (1999)	Bot et al (2000)	Van der Berg & Berger (2002)
Teacher qualifications	+				+
Facilities				+	+
Pupil: teacher ratios	0	++	++		
Learning materials	+				

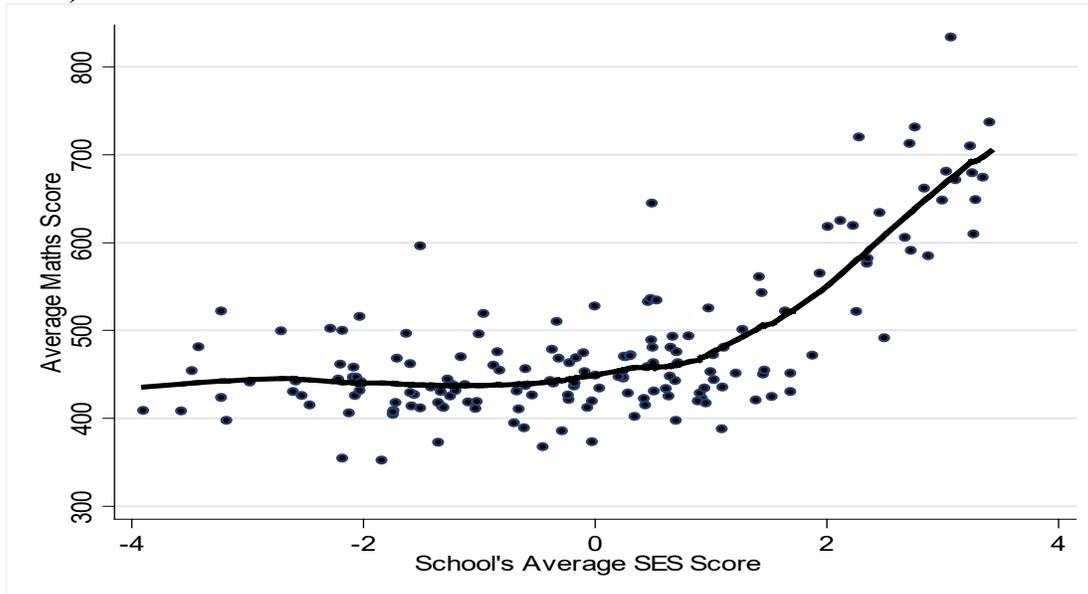
Key: ++ denotes strong positive correlation, + relatively weak positive correlation, 0 no significant difference; blank cells indicate that the study in question did not examine this factor.

4. Post-2003: Differentiation

During the second decade of democracy the types of programmes and research studies evident during the previous decade continue to exist. But the most significant development during this period is that research findings have begun to provide policy lessons for both government and private sector initiatives, giving shape to new models of school improvement. Most importantly, the new approaches start from the assumption

that different kinds of intervention programmes are applicable to different categories of schools. Production-function studies are best at illustrating the broad patterns evident in the system. Thus, van der Berg (2005) has shown that the South African school system is effectively composed of two sub-populations which behave quite differently (Figure 2).

Figure 2: Relationship between SES and SACMEQ II⁸ maths scores (van der Berg, 2005)



For the bottom 70% of the range of socio-economic status, the gradient of SACMEQ maths scores to SES is flat; at higher SES levels the curve assumes a quadratic shape, with increasing value added to the scores at higher levels of socio-economic advantage. Van der Berg (2005) speculates that this pattern, shown by both the reading and maths scores, indicates that below a certain SES threshold schools are unable to convert additional resources into educational advantage. Gustafsson (2005) notes that the inter-school inequalities, relative to overall inequalities, are greater with regard to performance than they are with regard to socio-economic status. The implication of these features is that the majority of schools, through below par performance, have negligible effects on reducing inequality.

⁸ SACMEQ is the Southern and Eastern African Consortium for Monitoring Education Quality, a UNESCO initiative involving 14 African countries. SACMEQ II, conducted in 2003, administered maths and literacy tests to a sample of Grade 3 pupils in 13 participating countries.

Oosthuizen and Bhorat (2006) have identified very similar patterns to the one illustrated in Figure 2 between school performance in the SC examinations and a wide range of resources (classrooms, desks, electricity, ceilings, teaching equipment), with a weak relationship existing over the first 8 performance deciles, and a steep positive change of slope for deciles 9 and 10. These patterns strongly reflect the imprint of inequitable apartheid policies, but at the same time, a significant number of schools defy historical trends. Simkins has categorised South African high schools into three types according to their performance in mathematics at SC level. The proportions of the three categories are shown in Table 7.

Table 7: Distribution of high schools by performance in SC mathematics⁹, 2004 (Simkins, 2005)

	Privileged* schools	African schools	Sub- total	Prop of Total	<i>Prop of HG math</i> <i>passes</i>
Top performing**	380	34	414	7%	66%
Moderately perf	254	573	827	14%	19%
Poor performing	600	4 277	4 877	79%	15%
Total	1 234	4 884	6 118		

* Under apartheid these schools were administered by the House of Assembly (for whites), House of Representatives ('coloured') or House of Delegates (Asian); they were relatively more privileged than those for Africans, with white schools significantly more privileged than those for any other group.

** Top performers produce at least 30 maths passes in the SC examination, with at least 20% at the higher grade (HG); moderately performing schools produce at least 30 math passes, mostly at standard grade, while poorly performing schools fail to achieve 30 passes in math.

Four features of Table 7 are worth noting:

- 79% of the country's high schools fall into the poorly performing category, producing only 15% of all HG passes in mathematics. The overwhelming majority of children attending these schools are poor and African.
- Two-thirds of HG math passes are produced by a small minority (7%) of schools. The majority of these were privileged under apartheid, although 34 of them have a history of disadvantage.

⁹ Measuring quality through performance in mathematics in no way implies that the production of good mathematics passes should constitute the main goal of schools. Mathematics is merely used as a proxy for quality, and it is assumed that good language, reading and writing skills underlie performance in mathematics.

- 600 formerly privileged schools fall into the poorly performing category. These are underperforming relative to their history of privilege.
- Over 600 African schools are classified as top or moderately performing. These schools are the country's star performers, producing excellent results despite their disadvantaged history and the fact that they continue to serve poor to very poor communities.

Although there is no indicator comparable to the SC examination at the primary level, all indications are that the performance of South Africa's 23 000 primary schools is distributed similarly to the pattern shown in Table 7.

The three sets of actors in the field of school improvement – the state, the private sector and international donors – are beginning to tailor their programmes in response to the respective challenges of the school categories shown in Table 7, while school effectiveness studies are turning their attention to investigating the characteristics of each category.

4.1 Moderately performing schools

In April 2006 the national Department of Education re-launched the Dinaledi project under a new design. Whereas the first phase of Dinaledi (see Figure 1) focused on 102 mainly poorly functioning high schools, Dinaledi II has selected 400 moderately performing schools across the nine provinces which produce at least 35 SC maths passes amongst African candidates. The aim is to double the number of maths passes for African pupils in the next five years, and to increase the HG:SG ratio. It is intended to achieve this goal by training teachers, incentivising teachers and schools, and improving infrastructure, facilities and equipment.

The training model adopted for Dinaledi II differs markedly from the majority of programmes in operation over the last two decades, and which have been marginally effective, at best, in improving student performance. Whereas most training to date has

concentrated on the principles of child-centred pedagogy and outcomes-based education, Dinaledi II will emphasise the content knowledge required to teach specific subjects. Furthermore, teachers will receive a cash payment for attending the full 100-hour programme, and a further sum if they perform adequately in a post-training test.

Similarly, a number of school improvement initiatives supported by corporate donors are targeting high schools with minimum levels of productive capacity. In part, companies are teaming up with government in supporting Dinaledi II schools, and in part they are searching for non-Dinaledi moderately performing schools, or for schools at the upper end of the poorly performing category.

While production-function analyses offers the best method for delineating gross patterns in the system, they are unable to penetrate the ‘black box’ of schooling to identify the processes which enable schools to utilise whatever resources they have with greater or lesser degrees of effectiveness. In response to this problem, mixed-method school effectiveness studies are beginning to develop a more detailed understanding of educational practices in homes, schools and classrooms, and in the bureaucracy at national, provincial and district levels. The effectiveness of such practices can be gauged on five factors: language, time management, curriculum coverage, reading and writing, and assessment. The current state of knowledge about these factors is shown in Table 8.

Table 8: Factors which influence learning at different levels of the school system

FACTORS	EFFECTIVE PRACTICES			
	Home	District and higher	School	Classroom
Language of instruction	Speak LOI <i>*PPP, Simkins (2003), Khanyisa</i>	Clear policy guidelines Monitor	Policy for the school Plans for developing proficiency in LOI	Develop proficiency
Time management	Sign homework <i>*PPP, SACMEQ, Khanyisa</i>	Monitor time management in schools	Regulate time use <i>*PPP, SACMEQ</i>	Adjusting pace to pupil ability <i>*PPP, Reeves</i>
Curriculum coverage	Assist with homework <i>* PPP</i>	Construct and distribute curriculum standards.	Monitor and support planning and delivery. <i>*PPP, QLP,</i>	Teacher knowledge. Plan and complete

		<i>*QLP</i>	<i>SACMEQ</i>	curriculum coverage. <i>*PPP, Reeves, SACMEQ, QLP</i>
Reading & Writing	Read <i>*PPP, Khanyisa</i>	Distribute books and stationery	Procure and manage books & stationery <i>*PPP, SACMEQ, QLP</i>	Read and write <i>*QLP</i>
Assessment	Monitor results	Quality assure and monitor results	Quality assure tests. Monitor results. <i>*QLP</i>	Assess. Provide feedback. <i>*Reeves, QLP</i>

* Significant association found between improved learning and this factor in the project named: PPP (van der Berg et al, 2005), QLP (Kanjee and Prinsloo, 2005; Taylor and Prinsloo, 2005), SACMEQ (Gustafsson, 2005), Simkins and Patterson (2003), Reeves (2005), Khanyisa (Simkins and Perreira, 2006).

Most prominent are language and home-related factors, which is not surprising given the strong co-linearity between these variables and poverty in South Africa. African children, which not only constitute the overwhelming majority but also fall predominantly into the poorest fractions of society, are largely schooled in English, which is a second or third language for almost all of them. Current government policy recommends mother-tongue instruction for at least the first three grades, but this may be overturned by the parent body of any school and there is evidence that this is frequently done (Taylor and Moyana, 2005). As a result many of the poorest children are schooled in an unfamiliar language, many from the first grade. The evidence summarised in Table 8 supports findings which have been well established in South Africa and elsewhere for some time: learning is greatly enhanced when the language of the home and that of the school coincide in the early years (Alidou et al, 2006). Furthermore, where there is a dissonance between the two, children do better at school the more their parents speak to them in the language of instruction (Simkins and Patterson, 2003).

Other home level practices which stand out strongly are reading and the performance of homework. A simplified PPP regression model showed a strong step-wise improvement in learning: grade 6 children who read once a week at home have an advantage of about 5 percentage points in a literacy test over those who do no reading at home; when reading is done 3 times a week the advantage is increased to 10 points, and those who read more

than 3 times a week are likely to be about 12 points ahead. In the full regression models the effects of reading at home are more muted (around 3.5 points), but remain strongly significant (van der Berg et al, 2005); similarly, regular homework adds around 2 percentage points to performance.

A number of school level management practices are associated with better than expected learning. Time regulation is chief amongst these. Gustafsson (2005) notes that teacher late coming is a factor in 85% of South African schools, and estimates that if all schools were brought up to the level of the best schools in this regard then overall scores on the SACMEQ tests would improve by around 15% across the system, and around 20% in the poorest schools. This factor has long been identified as a problem (Taylor and Vinjevold, 1999), and the latest studies (Chisholm et al, 2005) indicate that it continues to exert a strong inhibiting influence on the time available for learning, and consequently on the quality of schooling.

Curriculum leadership and management is a second school level factor associated with better than expected learning. Co-ordinating the construction of teacher plans for curriculum coverage, and monitoring the implementation of the plans was found by the PPP to have positive effects (van der Berg et al, op cit). These results are supported by the findings of the QLP evaluation (Kanjee and Prinsloo, 2005; Taylor and Prinsloo, 2005). Gustafsson (op cit) concurs with the QLP conclusion that providing advice to teachers by management is beneficial, and adds that fewer, well structured sessions are better than more frequent, less formal interactions.

In the domain of classroom practice, Reeves (2005) and the QLP evaluation agree that learning gains are proportional to the degree of curriculum coverage, and the extent to which the level of cognitive demand at which the material is presented approaches the level specified by the official curriculum. In addition, the QLP study found greater quantities of reading, writing and homework enhance learning, while Reeves concluded that pupils perform better in maths when the teacher is responsive to the stage of

development of individual children, gives explicit feedback in response to pupil knowledge displays and makes clear the criteria for judging a good display.

Table 5 also reveals three areas in which knowledge about South African schools is relatively poorly developed: two of these occur at the levels of the district and classroom, respectively, while the third, assessment, is a factor which cuts across all levels of the system. The paucity of knowledge about factors at the district level most probably arises because of the very low functionality of the majority of district offices. The silence around assessment is enigmatic. Expectations are that school-level practices – such as setting high expectations, quality assuring test papers, and monitoring results – would produce positive effects on learning. The lack of such findings in our research projects may derive from contradictory or uniformly poor assessment practices on the part of school management. The relative lack of conclusive research findings at the classroom level probably derives from the paucity of longitudinal designs to date: because of the accumulated effects of many different teachers on the performance of any child, the effects of particular teaching practices are best investigated by means of cohort studies which measure learning gains in individual students annually and correlate these against the styles of their teachers during the same period.

4.2 Top performing schools

As we have noted, a growing number of relatively poorly resourced African schools are providing education of high quality. However, the majority of the country's top schools are privileged institutions, formerly reserved for white and, to a lesser extent, 'coloured' or Asian children. Top African schools, together with those formerly privileged schools which have a majority African roll, are being served by the Dinaledi II project.

The remaining top performing schools fall into two groups: English-speaking schools which enrol African learners in numbers which vary from 25-75%, and Afrikaans-speaking schools containing minimal numbers of African pupils. In their search for non-Dinaledi schools which have high levels of capacity, some private sector school

improvement initiatives are investigating ways of providing incentives to these schools to increase their output of high quality SC graduates, particularly among poor African children.

4.3 Poorly performing schools

International donors, in the meantime, continue to sponsor earlier models of school improvement, targeting the poorest primary schools. For example, second phases of the Imbewu Project and the District Development and Support Project (now called the Integrated Education Programme) continue, while a major new initiative, the Khanyisa Education Support Programme, was launched in 2003.

Government has announced two new initiatives for this sector, aimed at complementing the 5-year old policy of allocating the non-personnel component of the budget to schools, in proportion to the relative poverty of the school community. Thus, in May 2006 the Minister announced the introduction of 'no fee schools' whereby the poorest quintile of schools may not charge any fees: in compensation they will receive an additional grant from the state. Further, the Quality Improvement and Development Strategy Upgrading Programme (QIDS UP) will aim to provide resources to 5 000 low performing schools (DoE, 2006). However, key to the success of achieving any meaningful change in the quality of schooling for the majority of poor children is finding ways of enabling these schools to use their resources more efficiently. This is a central problem in South African schooling and one which we know least about.

What we do know about the poorly performing sector is that it is not made up of an homogenous collection of dysfunctional schools. It is itself differentiated, with a top end which differs only marginally from the moderately performing schools included in Dinaledi II, and exhibits the full spectrum of performance down to the most severely dysfunctional schools. As we know from the experience of the QLP and the first phase of Dinaledi (see Figure 1), dysfunctional schools constitute somewhere between one- and two-thirds of the poorly performing sector (a total of between 1600 and 3200 schools).

This is a very large margin of uncertainty and an important research priority must be to identify the relative fractions of those schools which are amenable to current intervention programmes and those which require stronger medicine. Those schools at the top end are being targeted by new private sector initiatives, and evaluations of these efforts are bound to produce important school improvement lessons.

However, the greatest area of uncertainty lies in what to do about the bottom end of the poorly performing sector. Nothing that has been tried to date has had any effect on a large group of schools. We do know that these schools do not exhibit the factors identified in Table 8. First and foremost, they have poor time management practices, with many hours each week and many days over the year not being used for teaching and learning. Second, curriculum leadership is poorly developed in these schools, with little or no planning and monitoring coverage of the curriculum, or managing textbooks and stationery. At the classroom level it is clear that the teaching of reading and writing in the majority of schools is rudimentary in the extreme (Taylor and Moyana, 2005; Pretorius and Mayet, 2005).

But we don't know how to promote more effective management and teaching practices in dysfunctional schools. According to Hopkins et al (1997), rewards and sanctions have no bite in these schools, as they are unable to help themselves: they require a high level of external intervention and support, and there should be a clear and concerted focus on a specific, limited number of factors. In many schools in this state the first thing to be done is to remove the principal, and strong mediation may be required to break situations of conflict between factions in the school.

Only government has the authority to intervene here. But, as we have seen, provincial and district offices, by and large, are incapable of doing this, certainly on the kind of scale required to turn around the large numbers of failing schools in all provinces. The problem seems insurmountable, given the very weak state of large parts of all provincial departments of education. Central government and the private sector are embarking on a number of strategic experiments, attempting to establish workable models of capacity

building in those parts of the civil service which exhibit some functionality, and it is anticipated that these programmes will provide lessons for the rest of the system.

5. Conclusion

The South African school system consists of very small top and moderately performing sectors and a large poor to very poorly functioning rump. Interventions in poorly performing schools, which probably constitute around 80% of the total, have realised some impact, but proved to be highly inefficient. Research information about the characteristics of the three sectors is guiding the formulation of a differentiated set of responses to the problem of school quality.

Urgency is given to this quest by an acute skills shortage which is placing a ceiling on economic growth. Although the economy picked up encouragingly during the first decade of democracy, the 5% benchmark now seems to be presenting a bridge too far. Efforts to increase production of high level skills has caused government and corporate donors to target those schools which exhibit at least moderate levels of functionality. If current goals of doubling the number of SC passes in HG mathematics succeed, then the ratio of SC candidates to HG maths passes will improve from 20:1 to 10:1. This will provide the foundation for a very significant increase in high- to intermediate level skills for the second growth spurt required to enable the economy to make serious inroads into the problem of unemployment.

Focusing attention on high- and moderately-performing schools would seem to present the most efficient way of addressing supply-side constraints to economic growth in the short term. In addition, this strategy will begin to address South Africa's glaring between-school inequalities, which stand at almost twice that of any other SACMEQ country, except for that of the country's former colony Namibia. Should this strategy be effective, most of the growth in educational opportunities will be among African pupils, many of whom will be from very poor families. But, to give only passing attention to the poorest 80% of the system is an inefficient route to reducing social inequality. Furthermore, this

strategy will reach a limit, at which point any further growth will need to come from the poorly performing sector. Whichever way the problem is approached, strategies for improving the poorest schools must be developed sooner rather than later. Apart from incontrovertible moral reasons, social pressure, in the form of rising levels of crime and the growing incidence of other forms of social unrest, make this unavoidable.

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