

Outcomes, Effort and Values in Schooling

**Nick Taylor
Joint Education Trust**

**Presentation to the conference:
New Millenium Business
Business School, Wits University
15 May 2001**

1. VALUES AND SCHOOLING

There is much talk of values in education in South Africa these days. But this debate is not all about the same thing: there are a number of different senses in which the term 'values' is used.

On the one hand, one cannot deny the importance of Njabulo Ndebele's perspective when he used the occasion of the Ministerial Conference on Values, Education and Democracy in February 2001 to call for the construction of a national consensus of social values, a unifying framework within which our democracy can operate. This is the principal sense motivating the appointment of the Ministerial Committee on Values in Education, and articulates a need felt by many South Africans to effect a change of mindset across the cleavages and polarities which continue to afflict our society.

At the same conference, John Powell argued that, in order to offer the majority of South Africans equality of opportunity, our society needs to couple formal structural equality with effective affirmative remedies. This, in turn:

Is not simply about transferring resources to previously disadvantaged individuals. Rather it is about the provision of meaningful access to the institutions and mechanisms by which society cultivates the human capital that makes individuals attractive for admission and employment.

(Mail & Guardian website <http://www.teacher.co.za/200105/01-curriculum.html>)

In the same vein, Luis Crouch, economic advisor to the Department of Education, notes that, while education is already a good investment for the country in terms of the social returns to schooling, not only could it be a lot better, but that redress across the huge inequalities that continue to exist will not be possible unless efficiency is vastly improved (1997).

In this paper, I wish to pursue these latter arguments, through an exploration of three related issues. A fundamental value enshrined in our constitution is **equality of opportunity** (see especially Section 9(2) of Act 108 of 1996). I want to explore what this means in terms of the outcomes of schooling. I want to link this idea to a second notion of value, defined as **quality of outcomes as a ratio of effort expended**. Finally, I want to outline ways of increasing the value produced by the schooling system, as understood in this sense, as an essential mechanism for achieving equality of opportunity.

2. WHAT LEVEL OF EFFORT IS BEING APPLIED TO SCHOOLING?

There is general agreement that the South African education budget, around 7% of GDP, is high by any standards, placing us in the top 10% of developing countries. Furthermore, over the last 7 years – but particularly in its first 2 or 3 years in office – the new government has embarked on a triple-pronged redress strategy, redistributing the budget towards social services, towards the poorest provinces, and towards historically disadvantaged schools.

First some figures to show how South Africa's first democratic government effected a decisive shift in the centre of gravity of the national budget, from one weighted under apartheid towards defence and internal security, to a focus on the social services of education, health and welfare. The social services sector grew by an average of 4,5% between 1996/97 and 1999/00, exceeding the 3,8% growth rate for total expenditure, and increasing its share over this period from 81,7% to 83,2%. In 2000/01 social services were holding steady at 83,4%, made up of education at 40,2%, health at 24,3% and welfare at 18,9% (National Treasury, 2000). Budgeted expenditure for social services over the MTEF is projected to grow more slowly than other expenditure, at an annual average rate of 5,7% per annum.

Since education constitutes such a large proportion of the total budget, and since schooling is allocated such a large slice of education spending, this effect was felt most noticeably in the allocation to the provinces, which are responsible for school expenditure. Table 1 reflects this very significant increase in allocation to the provinces in the first two years of the new government's tenure. These figures also reflect the second redistribution strategy of the new government: weighting provincial allocations towards those provinces with higher than average poverty indices.

Table 1: PERCENTAGE GROWTH IN PROVINCIAL EDUCATION EXPENDITURE, 1995-2001							
PROV	Actual				Medium Term Estimate		
	1995/96*	1996/97	1997/98	1998/99*	1999/00	2000/01	2001/02
EC	79	37	9	-2	1	11	4
FS	N/a	24	5	3	8	7	5
GT	6	13	5	3	6	5	5
KN	5	16	7	-1	5	7	6
MP	18	23	4	5	5	9	7
NC	16	13	6	3	1	8	4
NP	N/a	29	7	1	-1	6	4
NW	128	21	9	-1	6	6	5
WC	2	20	-6	-2	-1	4	3
TOTAL	N/a	22	5	0	3	7	5

* Estimated actual
Source: Bot M and J Shindler, Baseline Study: Macro Indicators 1991-1996, Education 2000+, CEPD 1997; Estimates of revenue and estimates of expenditure for the financial year ending 31 March 1999 for the nine provinces; Department of Finance, 1999; Department of Education, personal communication, May 2000

While Table 1 raises all sorts of questions about the consistency of application of the relevant formula, the overall pattern is clear: during the first two years of democratic rule, government effected a very significant shift in expenditure toward the schooling sector in general, and toward the poorer provinces in particular. How effectively these increased revenues were utilised is an entirely different question, and one which I will return to below.

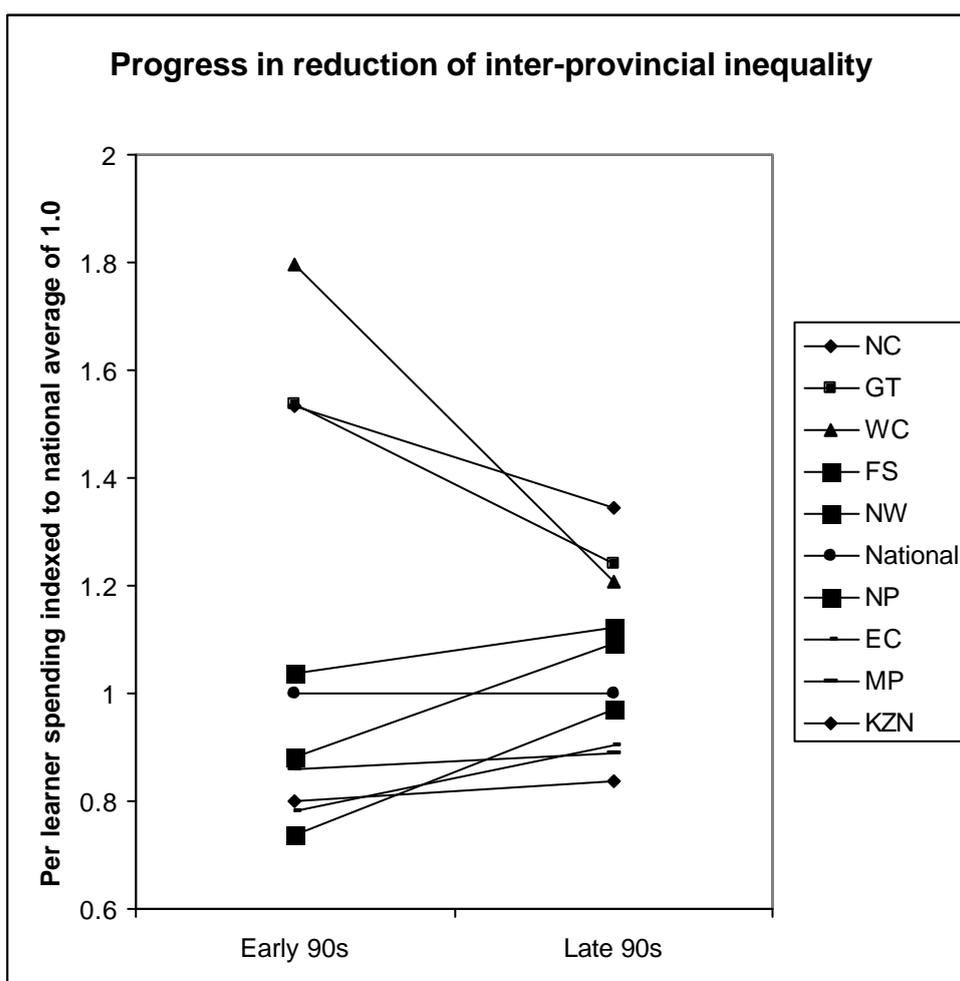
Table 1 offers a rather crude method for tracking changes in budgetary priorities. Crouch (1999) has developed a more sophisticated tool for showing these effects. This consists of calculating a coefficient of inter-provincial inequality, by means of the mean provincial deviation from the national weighted mean of per learner spending. The results are shown in Table 2.

Table 2: PROGRESS IN ERADICATING INTER-PROVINCIAL INEQUALITY	
Years	Mean provincial coefficient of absolute deviation from the national weighted mean of per learner spending
Early 1990s	0,32
1995	0,29
1996	0,22
Most recent estimate (1998 or 1999)	0,14

Source: calculated by Crouch (1999) from government estimates. Last full year is not common across the provinces, so mixed data were used to provide only an informed estimate of the situation.

These results clearly indicate that, although significant inequalities still exist between the provinces, due to residual historical patterns, much progress has been made in reducing these imbalances. Table 3 disaggregates the trends by province, showing that there is a convergence across provinces, with a decline in relative per learner spending in the more advantaged provinces, and a relative increase in the poorer provinces.

Table 3



The third redress mechanism adopted by government at the level of the budget is the norms for school funding, through which finances are intended to be disbursed to schools in direct proportion to the poverty levels of the feeder communities (DoE 1998a). Implementation of this policy is well behind target in most provinces due its complexity and lack of capacity in the provincial Departments of Education.

Nevertheless, the gross results of government's budget-directed redress is a schooling system to which virtually all children in South Africa have access, and indeed, one which is well utilised by the majority of children at all levels. This is illustrated in Table 4, which shows gross enrolment rates for the provinces (where gross enrolment rate is defined as the total enrolment by school level compared with the appropriately aged population for that level).

Table 4: GROSS ENROLMENT RATES BY PROVINCE, 1997 (%)		
	Primary (6-13 yrs)	Secondary (14-18 yrs)
Eastern Cape	110	74
Free State	109	99
Gauteng	96	85
KwaZulu-Natal	121	94
Mpumalanga	107	95
Northern Cape	87	63
Northern Province	98	106
North West	91	75
Western Cape	94	79
Total	105	88
Source: Bot M, Macro Indicators 1998: Update of Baseline Study. Education 2000+, CEPD, June 2000; National Treasury, Intergovernmental Fiscal Review 2000, October 2000		

Figures greater than 100% indicate the presence of children in the system outside of the appropriate age level for the respective group. A number of factors lead to this situation: enrolment of very young children, especially in grade 1, children dropping in and out throughout the system, and high repeater rates. We will return to the last issue under section 4.

To get a picture of the system as a whole, these enrolment rates should be seen as part of a school sector composed of nearly 12 million children, 362 280 teachers and administrators, and 27 454 schools. Details are given in Table 5.

It is important to get an idea of the size of the system, as scale is important in determining the possibilities, and particularly the timeframes involved in effecting significant reform. This, coupled with the fact that schools are spread more or less evenly over every corner of the country, serving communities in the remotest, most inaccessible areas, gives an indication of the task involved in maintaining the system, let alone reforming it in any significant way.

Table 5: NUMBER OF LEARNERS, SCHOOLS AND EDUCATORS BY PROVINCE, 2000						
Prov	Type of School	Learners	Educators	Schools	Learners/ Educator	Learners/ School
EC	Public	2 097 530	66 361	6 178	31.6	340
	Indep	8 049	453	39	17.8	206
	Total	2 105 579	66 814	6 217	31.5	339
FS	Public	732 491	22 834	2 443	32.1	300
	Indep	10 539	486	61	21.7	173
	Total	743 030	23 320	2 504	31.9	297
GT	Public	1 436 964	43 254	1 905	33.2	754
	Indep	117 531	7 004	365	16.8	322
	Total	1 554 495	50 258	2 270	30.9	685
KN	Public	2 624 947	71 748	5 693	36.6	461
	Indep	43 749	2 921	198	15.0	221
	Total	2 668 696	74 669	5 891	35.7	453
MP	Public	883 387	25 017	1 850	35.3	478
	Indep	10 209	661	54	15.4	189
	Total	893 596	25 678	1 904	34.8	469
NC	Public	198 246	6 399	486	31.0	408
	Indep	2 625	157	24	16.7	109
	Total	200 871	6 556	510	30.6	394
NP	Public	1 830 018	54 456	4 138	33.6	442
	Indep	15 247	683	60	22.3	254
	Total	1 845 265	55 139	4 198	33.5	440
NW	Public	901 340	29 516	2 294	30.5	393
	Indep	7 650	508	36	15.1	213
	Total	908 990	30 024	2 330	30.3	390
WC	Public	888 251	27 714	1 504	32.1	591
	Indep	28 133	2 108	126	13.3	223
	Total	916 384	29 822	1 630	30.7	562
TTL	Public	11 593 74	347 299	26 491	33.4	438
	Indep	243 732	14 981	963	16.3	253
	Total	11 836 06	362 280	27 454	32.7	431

Source: Bot, M, compiled from Directorate: Information Systems, Department of Education, March 2001

3. WHAT IS THE QUALITY OF THE OUTCOMES OF OUR SCHOOLING SYSTEM?

Since the purpose of schooling is learning, it follows that the quality of knowledge, skills and attitudes displayed by learners is the ultimate indicator of system outcomes. Any debate about learning outcomes must commence with the understanding that much of what children know derives from their homes, both before they get to school, and in interaction with what happens in school, thus giving middle class children a decided advantage in terms of their progress through the system, quite apart from the fact that middle class parents can often afford to send their children to better

resourced schools. This is also a point which I will pick up below, but before I turn to value-add considerations, lets look at some of the gross outcomes of schooling.

The only learning outcome indicator available at this stage is the matric exam. Table 6 gives an overview of the results for the last 7 years.

	Candidates	Total Passes	%	University Exemption	%	Total Failures	%
1994	495 408	287 343	58	88 497	18	208 065	42
1995	531 453	283 742	53	78 821	15	247 711	47
1996	518 032	278 958	54	79 768	15	239 074	46
1997	555 267	261 400	47	69 007	12	293 867	53
1998	552 384	272 488	49	69 856	13	279 954	51
1999	511 159	249 831	49	63 725	12	261 328	51
2000*	489 294	283 294	58	68 626	14	206 000	42

* The Dept of Education has not yet released its report on the 2000 exams, so these are rough figures.
 Source: Bot, M. Compiled from EduSource Data News and Department of Education, Report on the 1999 Senior Certificate Examination, Information as at 30 December 1999; The Sunday Independent 31/12/00

The gross pass rates across provinces follow patterns predicted by the respective poverty indices. Thus the Eastern Cape had the lowest pass rate (50%) and the Western Cape the highest (81%). However, the development of a more sophisticated instrument sensitive to value-add would be an important management tool in holding individual provinces, schools and other components of the system accountable, and to systematically improving these dismal figures.

Much has been made of the fact that, after three years of pass rates under 50%, last year saw an improvement to 58%. Making much of the annual matric results is something of a national pastime, but 2000 injected a new element into this sport, representing the first significant turnaround since 1994 (there was something of a stabilisation in 1998 and 1999), particularly coming as it did against the background of Minister Asmal's bold assertion at the beginning of the year that his aim was to improve the results by at least 5%.

Against growls of scepticism from certain quarters, the first and only serious analysis to date of the 2000 results (Motala and Perry, 2001), tentatively concludes that the improvement was most likely due to a combination of four factors:

- ? A reduction in the numbers of repeating candidates allowed to sit the exam (estimated to be responsible for something in the order of 1% of the 9% total improvement over 1999).
- ? The use of pupils class marks – moderated by the SA Certification Council - which constituted 25% of the exam result (estimated to be responsible for 3 – 5% of the improvement).
- ? Moving pupils to standard grade, where their teachers felt that attempting higher grade was unrealistic (2 – 3%).
- ? Interventions by the provincial Departments of Education, such as the implementation of a preparatory exam, curriculum support for teachers, timely

delivery of exam aids and other support material to schools, and a particular focus on schools which achieved pass rates of 20% or less in 1999 (2 – 3%). (See Fleisch, 2001 for a preliminary analysis of these activities in Gauteng).

The first three factors are administrative measures which, while they constitute very important efficiency achievements, have little or nothing to do with improving the quality of learning outcomes.

A particularly pleasing feature of the 2000 results is that the absolute number of passes exceeded those for 1999 by nearly 36 500, an increase of close to 15%, while the absolute number of exemptions increased by 4901 (7,7%). Nevertheless, the number of passes is still 1,4% below 1994 levels, while exemptions are a huge 22,5% down on 1994. It may seem churlish to complain in the face of the success achieved collectively by the 10 Departments, but the extremely high numbers of learners who fail - somewhere between 250 000 and 300 000 in the 1997 to 1999 period and 206 000 last year – represents massive wastage through the system.

Of at least equal concern are the results for maths and science. These are summarised in Table 7.

Table 7: MATHS AND SCIENCE SENIOR CERTIFICATE RESULTS, 2000							
	Total Candidates	No. who wrote	%	No. who failed	%	No. who passed	%
Maths HG	489 941	38 520	8	13 643	3	24 877	5
Maths SG	489 941	245 497	50	142 232	29	103 265	21
Maths Total	489 941	284 017	58	155 875	32	128 142	26
Phys. Sc. HG	489 941	55 699	11	19 416	4	36 283	7
Phys. Sc. SG	489 941	107 486	22	31 605	6	75 881	15
Phys. Sc. Tot	489 941	163 185	33	51 021	10	112 164	23

Source: As for Table 6.

The following comparison may put these results into perspective:

For every 100 pupils who sat the 2000 matric exam

? 58 wrote maths, 8 on the higher grade

? 26 obtained a pass, 5 on the higher grade

The annual open season on the matric exam provides a happy hunting ground for critics of all kinds, and indeed there is much to criticise about every aspect of this exercise. Yet, it is the one part of the school system that works with exemplary efficiency; it should serve as a shining model for every other institution in the system. It is probable that the secret of this success is that it is a very high profile event, with clearly defined indicators of success, high expectations on the part of the public and close scrutiny by the media. Perhaps it is this combination of factors that ensure that not a single paper leaks, from the first draft produced around April, to the writing by hundreds of thousands of pupils in the aforementioned tens of thousands of schools, through to the marking, moderating, collating and analysing of millions of scripts, down to the marks being published, with very few mistakes, before Christmas. Would that even 20% of our schools and other components of the system – such as processes

for textbook provision, and the processing of teachers' pay and leave applications – operated in this fashion.

Perhaps the biggest problem with the matric exam is that it is the only quality assurance mechanism in the system. While the Department of Education has committed itself to systematically collecting data on learner achievement (DoE, 1998b), and while a pilot project has been in progress this year (DoE 2001), the continuing absence of information on learner performance, except at the matric level, means that, in terms of its most critical indicator, the system is essentially flying blind for 12 years. This is what makes hitting the brick wall of matric failure for nearly half the children who have survived to this point – against the odds – so devastating. It would seem imperative to institute regular checks on children's learning progress from an early age.

Although we do not have a systematic picture of what our children are or are not learning at points of the system other than matric, what research does exist all points in the same direction. In our poorest schools it would seem that there is a disaster happening in terms of performance levels in literacy and numeracy, the foundations on which all other forms of learning depend. Assessment of learning at the end of grade 3 in over 500 rural and township primary schools across 5 provinces (JET, 2001) indicates that children are already a good two years behind what their teachers and administrators expect of them. Most pupils are barely able to write their names and are only just beginning to learn to read. While the majority are able to complete word recognition tasks, there are dramatic declines in performance from these elementary skills to the more complex task of sentence completion, and uniformly very low results across schools on the comprehension of simple passages.

In the area of numeracy, it is striking that counting and ordering tasks were less well done than addition. This would seem to indicate that learners have low levels of conceptual understanding of the number system. The only numeracy skill which most children at this level are competent in is in adding two-digit numbers (ie tens), but only when no 'carrying over' of digits between the units and tens columns is involved. Furthermore, a majority of learners use 'concrete' methods for both addition and subtraction tasks: for example, drawing 7 marks and a further 5 marks, to find the solution to $7 + 5$. These 'baby' methods may be all very well in the early stages of numeracy, but become a real impediment when dealing with larger numbers. This is well illustrated by the fact that the performance of this group of learners falls off rapidly when tens, hundreds and thousands are encountered, and that the understanding of subtraction is poor and of multiplication very poor. It is clear that many learners are not making the transition to more abstract methods which depend upon a good understanding of the structure of the base 10 number system.

Tests now being piloted in grade 6 indicate that South African children have slipped even further behind what they might reasonably be expected to know and be able to do at this level.

The PEI research (Taylor and Vinjevoold, 1999) gives some insights into why these performance levels may be so low. For example, one study found that in grade 4 it is very common to see teachers still working with tens and units, and never venturing further. Other PEI studies noted that there is very little writing in the classes observed

and what does occur is often in the form of single words or phrases, with very little or no extended writing. Instead, children sit in groups and talk about their everyday experiences, often with little or no conceptual content or direction to this activity. A number of PEI researchers also noted that books are very rarely used in the classes observed, even in those schools well supplied with books.

Under these circumstances it is not surprising that the progress of pupils through the grades is slow. No exact throughput figures are available, but percentage enrolments by grade give a crude indication of attrition rates. As Table 8 shows, two-thirds of all learners are in primary schools, ranging from a low of 61% in the Free State to a high of 72% in the Eastern Cape. Ideally, if the same number of learners enter grade 1 every year, and if learners progress smoothly and there is little repetition, this proportion would be much lower (with around 58% of total learners in primary schools).

	EC	FS	GT	KN	MP	NC	NP	NW	WC	TTL
Gr 1	16	8	10	11	10	9	9	9	10	11
Gr 2	12	9	10	10	9	10	10	10	10	10
Gr 3	11	9	10	10	10	10	9	10	10	10
Gr 4	10	10	9	10	10	11	9	10	10	10
Gr 5	9	9	9	9	9	10	9	10	9	9
Gr 6	8	8	8	8	8	9	8	8	9	8
Gr 7	7	8	8	8	8	8	8	8	8	8
Subtotl	72	61	63	66	64	67	63	65	66	66
Gr 8	7	9	9	9	9	9	10	8	9	9
Gr 9	6	9	8	8	8	8	8	7	8	8
Gr 10	6	8	8	7	7	6	7	8	7	7
Gr 11	5	7	7	6	6	5	7	7	6	6
Gr 12	4	5	5	4	5	4	6	5	5	5
Subtotl	28	38	37	34	35	32	37	35	34	34
Total	100									

Source: Bot, M, derived from Department of Education, Annual Report 1999, RP 62/2000

More revealing of the nature of the sluggish progress of pupils is to look at the number of years they spend in each grade. Table 9 shows the results of a sample exercise of this kind, conducted across the system at grade 4 level.

Table 9: DISTRIBUTION OF GRADE 4 LEARNERS BY NUMBER OF YEARS SPENT IN DIFFERENT GRADES, 1999											
Grade	No. of Yrs	EC	FS	GT	KN	MP	NC	NP	NW	WC	TT L
1	1	75	82	90	81	80	84	86	57	92	80
	2	22	18	10	18	20	15	13	21	8	17
	3	3	1	0	1	1	1	1	22	0	3
2	1	82	85	90	87	79	83	84	44	91	81
	2	17	13	10	12	19	17	15	27	8	15
	3	2	2	0	1	2	0	1	29	1	4
3	1	84	79	90	90	79	89	86	32	93	82
	2	14	18	9	9	18	10	13	36	6	14
	3	2	2	1	2	3	2	2	32	1	4
4	1	87	78	90	88	79	91	88	27	92	82
	2	12	21	10	12	20	9	11	29	7	14
	3	1	1	0	1	1	1	1	44	0	4
NB Percentages may not add up due to rounding off. Source: Bot, M: South Africa Monitoring Learning Achievement Survey, 1999, in Department of Education, November 1999											

Crouch (1999) has used data of this kind to define a crude 'internal efficiency indicator', and used it to calculate that it takes a grade 7 enrollee some 29% longer than it should to get to grade 7 (indicator value of 1,29); ie it takes, on average, 9 learner years of effort to get to grade 7.

Recent policies should see a reduction in repetition rates and in under- and over-age enrolment. These include limiting repetition to once per phase, stricter policies in respect of age-for-grade, and only six-year olds being admitted to grade 1. Needless to say, these measures will not be indicative of improved performance, and indeed may even result in a decline in learning standards.

3. WHAT VALUE ARE WE GETTING FROM THE SCHOOL SYSTEM?

We have looked at the kind of effort, at a gross level, that South Africa expends on schooling, and we have examined the principal outcomes, such as they are. To get back to the question I asked in my introduction: what kind of value are we getting in terms of the ratio of the quality of the outcomes to the level of effort?

One approach to this question is to compare the progress of South African pupils with those of some of our neighbours, using the internal efficiency index developed by Crouch. The results are shown in Table 10.

Country	Enrolment grades 1-7/ Enrolment grade 7/7	GDP per capita at PPP, 1998
Senegal	1,13	1850
Zambia	1,15	950
Burkina Faso	1,18	950
South Africa	1,29	6200
Kenya	1,28	1600
Swaziland	1,28	3800
Guinea	1,30	1100

Source: Crouch (1999)

While the index for South Africa is close to that of Kenya, Swaziland and Guinea, these countries are far poorer and hence would spend far less on education. Further, these figures indicate that South Africa's schools are twice as inefficient as those of Senegal and Zambia, yet these countries are even poorer.

Lets turn to some comparative data on pupil learning. In terms of international comparisons, South Africa fares poorly at all levels. According to a study which examined 12 countries in Africa, South African grade 4 learners have among the worst numeracy, literacy and life skills in Africa. The study was commissioned by the national Department of Education, which participated for the first time in the Joint International Unesco-Unicef Monitoring Learning Achievement (MLA) Project (DoE, 2000a; Chinupah et al, 2000). More than 10 000 grade 4 learners participated in the South African study, and they scored an average of only 30% for numeracy, coming last of the 12 countries, a good 3% below Zambia, the next lowest performer. A large proportion scored below 25%, while only about 2% obtained scores in the 75-100% range. In life skills, South African learners came second last, and in literacy, they came eighth.

	Numeracy	Literacy	Life Skills
Eastern Cape	31%	48%	48%
Free State	27%	40%	34%
Gauteng	36%	61%	54%
KwaZulu- Natal	31%	51%	51%
Mpumalanga	23%	33%	38%
Northern Cape	32%	53%	45%
Northern Province	26%	43%	45%
North West	29%	45%	43%
Western Cape	38%	61%	56%
Average	30%	48%	47%

Source: Bot, M compiled from The Sunday Times 16/7/00

Similar poor results were obtained in 1996, when South African grade 7 and 8 learners came last out of 40 countries which participated in the Third International Mathematics and Science Study, which did not include any other African countries. (Sunday Times 16/7/00). Compared with other developing countries with similar GDP figures, South Africa would seem to be some 9% behind Iran, Thailand, Columbia, and the South American average (Crouch 1999).

4. WHAT FACTORS SEEM TO ADD MOST VALUE?

I have alluded to the very strong influence of socio-economic status on pupil performance at school. This is a very robust finding which has been known since the famous Coleman Report was published in the sixties. (In fact, some might say it is the only thing we know for sure about schools). It is not surprising, therefore, that it has also been found to be true for South Africa. In a regression analysis of factors which co-vary with matric results in Gauteng and the Northern Cape, Crouch and Mabogoane (1998) found strong positive correlations with three factors:

- ? the poverty index of the school
- ? whether or not it is a former 'black' school (ie, administered by the DET)
- ? the qualifications of the teachers.

Less strong but significantly positive associations were found with what Crouch and Mabogoane term 'strongly cognitive resources' like books, the adequacy of media centre materials, and whether computers are used for instructional purposes. Factors such as pupil:teacher ratio, the conditions of the school buildings, and other resources seem to have little or no correlation with learning. After all these factors have been accounted for, some 20 – 30% of learning remains unexplained. The authors conclude that this component is due to differences in the quality of management. Since the second major positive factor (whether the school was formerly administered by the DET) is also essentially about management, it would appear that the quality of the management of a school may account for around 50% of the variation in learning outcomes across schools.

This study was confined to two provinces which in many respects are not typical of the poorer regions of South Africa. Work of this kind needs to be undertaken across the range of conditions pertaining in our schools, and extended to investigate the precise nature of the management factors and qualifications which contribute most to learning.

Nevertheless, in the light of the information that is available, it is worth returning to an issue raised in section 2 above, where we described how, since the advent of democratic rule in South Africa, there has been a very significant redistribution of resources to the schooling sector in general and to the poorer provinces and schools in particular. Is this money being well spent? Is it improving the educational opportunities of poor children? Closer examination of how this money was initially spent shows that it was absorbed entirely in hiring new teachers (a 14% increase in 1996/7), and in increased salaries (average 12 – 15%) due to the rationalisation of pay scales.

Between 1995/96 and 1998/99, expenditure on personnel increased by 35%, while non-personnel expenditure decreased by almost 12%. If the Crouch-Mabogoane model is correct, then we would expect that not only would hiring additional teachers without targeting those with higher qualifications not to have a positive effect on learning, but the fact that the additional hires were made at the expense of books would be expected to make learning more difficult. While 86% of total spending went to personnel in 1995/96, it accounted for 91% of total expenditure in 1998/99. What is particularly worrying is that personnel spending was highest in those provinces which have the greatest backlogs in terms of equipment and infrastructure (Eastern Cape, KwaZulu-Natal, Northern Province and North West). In these provinces, personnel expenditure accounted for 93-94% of the total, while in the other provinces it ranged from 82% to 91%.

Between 1995/96 and 1999/00, budgeted personnel expenditure not only absorbed all of the increase in education expenditure, but overshot it by R1,3bn. At the same time budgeted spending on books and stationery showed a real decline of 14%, while enrolment increased. The largest decreases were in the Eastern Cape and Northern province (-46% and -42%). (Wildman, 2001; National Treasury, 2000). Provinces allocated R579m to textbooks and R215m to stationery in 1999/00. This represents a figure of almost R48 per learner on textbooks, compared with R61 in 1995/96.

Another way of illustrating how the increase in the education budget in the mid- to late-90s was spent is through an examination of the per-learner budget for personnel and non-personnel items. In the Eastern Cape and Northern Province, only about R140 was spent per learner on non-personnel items in 1999, compared with R856 in the Northern Cape. While per-learner spending on personnel ranged from a low of 81% of the national average (KwaZulu-Natal) to a high of 136% (Gauteng), per learner spending on non-personnel items ranged from a low of 46% of the national average (in the Eastern Cape and Northern Province) to 283% (in the Northern Cape).

Table 12 PER-LEARNER BUDGETS FOR PERSONNEL AND NON-PERSONNEL ITEMS, 1998/99 & 1999/00						
	Per-learner Budget for 1998/99 (Rands)			Per-learner Budget for 1999/00 (Rands)		
PROV	Personnel	Non-Personnel	Total	Personnel	Non-personnel	Total
EC	2 578	196	2 774	2 749	142	2 890
FS	2 726	292	3 017	3 062	419	3 481
GT	3 344	464	3 808	3 984	605	4 589
KN	2 225	181	2 406	2 376	266	2 642
MP	2 490	258	2 748	2 694	294	2 988
NC	3 628	609	4 237	3 538	856	4 394
NP	2 780	268	3 049	2 665	140	2 805
NW	2 946	316	3 262	3 251	315	3 567
WC	3 315	390	3 705	3 730	481	4 211
TOT	2 727	278	3 005	2 930	302	3 232
Source: Bot, M compiled from National Treasury, 2000						

Since 1998/99, personnel expenditure has stabilised and is beginning to decline as a proportion of education expenditure. Projected slow growth in personnel expenditure

over the medium term (at an average 5,3% a year) will allow non-personnel expenditure to grow by 15,4% a year. Personnel expenditure is projected to decline to 88% in 2002/02. (National Treasury, 2000)

6. WHAT IS TO BE DONE?

There is no question that the South African public school system is one of the most inefficient in the world, if not at the bottom of the pile. Despite high levels of spending as a percentage of GDP, off a base that is significantly higher than that of the overwhelming majority of developing countries, learning outcomes are either worse than or comparable with those of the poorest nations. This gross systemic inefficiency is the largest single obstacle to overcoming the legacy of apartheid and providing equality of opportunity to all our citizens. While vigorous redress measures have been instituted since the election of the first democratic government, the increased flow of resources to the historically disadvantaged sectors appears to have had little if any effect on improving learning outcomes.

The first step towards increasing efficiency is to adjust the budget so as to target items which make a difference to learning outcomes. A high priority in this regard is to reduce the salary bill by increasing the teacher:pupil ratio, and directing the released funds towards textbooks, stationery and other 'strongly cognitive' resources. Government has identified this as a priority for, but it is likely to take time to have any significant effect. Furthermore, the effects on learning achieved by budget adjustments are likely to be small unless combined with other measures aimed at improving institutional functionality.

Clearly a number of very poor schools are performing heroically, producing matric results way above the national and provincial norms. Conversely, any school which is relatively well endowed which is not performing well above the norms, is underperforming. And any school, rich or poor, which scores in the range 0 – 30% on matric pass rate needs to increase its effort. A feature of public schooling in South Africa is the fact that poorly endowed institutions in the first of these three categories are scattered throughout the country, often existing side-by-side with schools of the third type, under conditions of the most extreme deprivation. This is both very revealing and encouraging.

It is revealing because it confirms that, above a rather low threshold, providing additional resources to schools will not necessarily result in improved learning. This is not to say that there are not other compelling reasons – relating to hygiene, human dignity and quality of life, for example – for providing all schools with running water, flush toilets, electricity and first grade buildings, but these amenities, on their own, do not improve the quality of educational outcomes. All the evidence at our disposal indicates that the disparities in learning outcomes between successful schools and their less successful neighbours are essentially due to differences in their management practices. This is also an encouraging finding, since improving management practices, while likely to prove less tractable on the kind of scale required in South Africa, is a problem which is amenable to intervention. And the juxtaposition of successful and unsuccessful schools, operating under identical socio-economic conditions, indicates that the problem may be relatively easily solved at the level of individual institutions.

It is becoming increasingly clear that the solution to this problem must commence with the institution of a suite of demand-pull measures driven by the national and provincial Departments of Education (Muller and Roberts, 2000; Fleisch, 2001). The good news is that there is movement at last on three of the most important demand drivers required to steer any large school system. First, the Ministerial Curriculum Committee is in the process of formulating specific, measurable learning outcomes by learning area and grade: these will provide the framework which guides the delivery of lessons, the production of textbooks, and the assessment of learner performance. Second, the DoE has committed itself to commencing implementation of a systemic assessment exercise in 2001 (DoE, 2001): this will provide the monitoring mechanism essential for assessing the quality of learning at key levels of the system. Third, the Whole School Evaluation exercise, aimed at establishing the functionality of management practices in schools, is also due to commence this year (DoE, 2000b; DoE, 2000c; DoE, 2000d).

Collectively these three measures will provide the framework and instruments needed to hold individuals and institutions accountable to public expectations, and to the conditions of their employment. However, there is a fourth element still missing: a performance management system, through which the work of individuals, teams and institutions as a whole would be planned, supported and monitored, and through which inefficiencies and development needs are identified and remedied. While it is true that the work of senior civil servants is beginning to be regulated through performance contracts, in the absence of the necessary microtechnologies of management at all levels of the system, managers have few tools at their disposal to ensure that their subordinates play their respective roles in meeting performance targets. Without such technology, the only means at the disposal of senior managers are the blunt instruments of threats, exhortation, cajoling, and management by 'walking around and shouting'.

At the other end of the spectrum, the country is awash with supply-push interventions which provide training programmes to district officials, principals, teachers, and school governing bodies. Institutions of higher learning churn thousands of educators through in-service programmes of every description. In the non-government sector it is estimated that something in the order of 20% of the nation's nearly 30 000 schools are involved in donor- and NGO-initiated development projects of one or other kind, with a total off-budget expenditure approaching R300m annually. This includes five year commitments of some R120m by US AID, and R300m by the Business Trust, a new five year allocation of R240m by the British Department for International Development, following the completion of the R90m Imbewu programme; smaller but still very significant contributions by the Joint Education Trust, the National Business Initiative, the Royal Netherlands Embassy and the Danish International Development Agency; and dozens of smaller projects supported by a host of local and offshore donors. It is estimated (BMI, 2000) that of the R648m donated by the South African corporate sector in 2000, R477 went to programmes in the formal education sector, of which around R150m may have been allocated to activities related to school development.

These supply side initiatives can have only marginal effects, at best, until the demand drivers begin to bite. The latter provide motivation for and direction to supply push

measures, by identifying capacity shortcomings, establishing outcome targets, and setting in place incentives and sanctions which motivate and constrain teachers and managers throughout the system to apply the lessons learned on training courses in their daily work practices. Without these, supply side measures are like trying to push a piece of string: with the best will in the world, it has nowhere to go.

On the other hand, demand measures on their own, such as those employed in improving the 2000 matric exam results, may effect significant initial productivity gains. However, these are likely to reach a threshold when they run up against the ceiling of low technical capacity on the part of teachers and managers. Optimising the quality of schooling, therefore, will depend on mobilising an integrated set of supply and demand measures. The extent to which government officials take charge and direct the resources offered by the non-government sector, within the framework of public policy, will in large measure determine the extent to which this synergy is achieved. However, this will not be easily done, since government capacity is weakest at the levels of district and school management, the key points of intersection between demand- and supply-side interventions. Solving this conundrum is the key to systematically improving school performance.

ACKNOWLEDGEMENTS

The author is indebted to Luis Crouch who compiled Tables 2, 3 and 10, and to Monica Bot who put together the remaining Tables.

REFERENCES

BMI (2000) **The CSI Handbook 2000**. Cape Town: Triologue

CEPD (2000) **Education 2000 Plus: Transformation of the South African Schooling System**. Johannesburg: Centre for Education Policy Development, Evaluation and Management.

Chinupah, V et al (2000) **With Africa for Africa: Towards Quality Education For All**. Pretoria: Human Sciences Research Council.

Crouch, L (1997) **Will Things or Will Knowledge Fuel South Africa's Growth?** Mimeo

Crouch, L and T Mabogoane (1998) **No Magic Bullets, Just Tracer Bullets**. Mimeo.

Crouch, L (1999) **Will South Africa Be Able to Afford to Educate Her Children into the 21st Century?** Mimeo.

DoE (1998a) **National Norms and Standards for School Funding**. Pretoria: Department of Education.

DoE (1998) **Assessment Policy in the General Education and Training Band. Grades R to 9 and ABET.** Government Gazette Vol 402, No 19640. Pretoria: Government Printer.

DoE (2000a) **Education for All: The South African Assessment Report.** Pretoria: Department of Education

DoE (2000b) **The National Policy on Whole-School Evaluation. Final.** Pretoria: Department of Education.

DoE (2000c) **Whole School Evaluation: Evaluation Guidelines and Criteria.** Pretoria: Department of Education.

DoE (2000d) **Whole School Evaluation: Instruments for Whole School Evaluation and School Self-Evaluation.** Pretoria: Department of Education.

DoE (April 2001) **Draft Framework for Systemic Evaluation.** Pretoria: Department of Education.

Fleisch, B (2001) **Draft Research Report on the Education Action Zones, GDE.** Commissioned by the Joint Education Trust

Malcolm, C, Moyra Keane, Lebala Hoohlo, Mantombi Kgaka and Jill Ovens (2000) Why Some “Disadvantaged” Schools Succeed in Mathematics and Science: a Study of “Feeder” Schools. Commissioned by the NCCRD (Department of Education)

Wildeman, R (2001) **A Review of Provincial Education Budgets 2001.** IDASA Budget Brief No 67, March 2001.

National Treasury (2000) **Intergovernment Fiscal Review 2000.** Pretoria: National Treasury.

JET (2001) **Mahlahle Baseline Report.** Johannesburg: Joint Education Trust.

Mail and Guardian (May 2001) <http://www.teacher.co.za/200105/01-curriculum.html>

Motala, S and H Perry (2001) The 2000 Senior Certificate Examinations. **Quarterly Review Vol 8 No 7.** Johannesburg: Education Policy Unit, University of the Witwatersrand.

Muller, JP and J Roberts (2000). **The Sound and Fury of International School Reform: A Critical Review.** Unpublished, Joint Education Trust.

Republic of South Africa (1997) **Act 108 of 1997.** Pretoria: Government Printers.

Sunday Times (17 July 2000) We Are the Dunces of Africa.

Taylor, N and P Vinjevold (1999) **Getting Learning Right: Report of the President's Education Initiative Research Project.** Johannesburg: JET.