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## The State of Education in South Africa: Some Indicators

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This article reviews the recent history and results of educational policy in South Africa, with particular emphasis on the education of blacks. The government has declared its commitment to equality of educational treatment for all, and has substantially increased its funding in recent times. The problems of overcoming past inequalities are enormous, however, and particular attention needs to be given to non-formal adult education and improved teaching in the rural areas.

In dié artikel word 'n oorsig gebied oor die onlangse geskiedenis van die Suid-Afrikaanse onderwysbeleid, veral met verwysing na onderwys vir Swartes. Die Staat het verklaar dat hy hom verbind tot gelyke behandeling vir almal in die onderwys en het in die jongste verlede sy besteding aan die onderwys aansienlik vergroot. Die probleme om die ongelykhede van die verlede te oorkom, is egter geweldig. Daar moet veral aandag geskenk word aan nieformele opleiding vir volwassenes en verbeterde onderrig op plattelandse gebiede.

Education policies and systems in any country reflect its 'political options, its traditions and values, and its conceptions of the future', and exist in the context of a particular social, economic, political and (now in South Africa) constitutional order. The consequences of this for South Africa have been twofold in nature: the fragmentation of the control and processes of education under eighteen separate systems (Indian, 'coloured'[mixed race], eleven black and five white); and the concomitant discriminatory hierarchy of financing, resources, facilities, quality and 'outcomes', with the white systems faring the best and the black the worst. The results have been serious for South Africa, both for the individual and for society: the wastage of human potential has severely hindered development not only in the obvious sense of economic needs (skilled manpower and management expertise), but also in the more fundamental area of social relationships and human understanding. Education, instead of having a creative, common national purpose directed to the future, has been concerned too much with the past, or at least the status quo, and has been divisive in its nature.

## Pressures for reform

In the last ten years, however, there have been increasing pressures for reform, coming mainly from three sources. The private business sector, firstly, has been critical of the so-called 'academic' nature of schooling and its failure to prepare young people adequately for the modern technological world, as also in particular the failure of the black education systems to provide the additional skilled manpower required for the maintenance and growth of the economy. Teachers and educationalists, from a different perspective, have also questioned the relevance of the school systems, their authoritarianism and the limited influence teachers have had as professionals on major decisions on the form and content of education. The most powerful challenge to the

State education systems, however, has come from the black and coloured communities that were no longer prepared to accept without protest, inferior, segregated, discriminatory education systems being imposed upon them. This culminated in the schools unrest, starting in Soweto on 16 June 1976, which in the next four years was to spread across the country, gaining increasing support from teachers, parents and the black and coloured communities in general, until these education systems came perilously close to complete breakdown.

## HSRC investigation into education 1980-1

purposeful endeavour of the State."

As a result of these pressures, and in particular the latter, the government commissioned the Human Sciences Research Council to conduct an investigation into all aspects and levels of education. The committee appointed to supervise this research, under the chairmanship of Professor J.P. de Lange, met for the first time in August 1980 and reported at the end of July 1981, issuing a Main Report<sup>2</sup> and 18 reports of working committees on various aspects of education such as management, curriculum, science and mathematics, languages, etc. Three critical recommendations, indicative of the general spirit of the report, were that Government should accept the eleven basic principles governing the work of the de Lange Committee, the first and most important being "Equal opportunities for education, including equal standards in education, for every inhabitant, irrespective of race colour, creed or sex, shall be the

A single Ministry of Education which would be responsible for broad, overall education policy should be set up, together with operational departments at the second (regional) level which would be responsible "for providing education within a defined area."

A South African Council for Education (SACE), representative of all the people of South Africa and of all the interested groups concerned (parents, teachers, community and economic groups etc.), should be set up to advise this Ministry and to report annually to Parliament.

The essence of the report was that the approach to education should be much more open and flexible, that parents, teachers and communities should have much more say in decision-making, which should be moved as near as possible to the situations affected by the decisions (e.g. admissions to universities), and that in relating education to the development needs of South Africa, fairness and justice demanded attention to the inequalities suffered by the disadvantaged sectors of society. Attention was also focused on the specific areas of pre-school, career and nonformal, adult education.

## The government White Paper on education, 1983

The responses to the de Lange Report have been widely divergent, indicative of the seriously divided nature of South African society: from rejection because it went too far or not nearly far enough, through criticism of its so-called 'technicist' nature because it concentrated on the 'provision' of education and avoided, in the main, consideration of philosophies and ideologies (as indeed the Committee had to do to find a basis for agreement), to broad acceptance of the report as a starting point for educational reform. The critical response has been that of government in the White Paper of November, 1983. In this,

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for the first time in the history of South Africa, the basic principle of equality of opportunity and of standards in education was accepted formally by the State, but subject to the maintenance of certain 'guiding principles' (described in political terms as 'nonnegotiables'), chief among which were that each 'population group' was to have its own schools and its own education authorities, that mother tongue instruction should continue and that white education should continue to be governed by the Christian, national 'life-view' laid down in the 1967 National Education Policy Act.

## Equal but separate

There has therefore been an important shift in the education debate to a focus on the concept of 'equal but separate', with the major issue being whether equality can be achieved in practice if the education systems continue to be segregated. The de Lange Committee realised fully the difficulties inherent in the concept of 'equality' and recommended that in practice a start should be made by eliminating the obvious, documented inequalities. Some of the indicators of the hierarchy of inequality are set out in Table 1.

Another way of highlighting the financial inequality is to say here are more than five times as many black pupils as white, but the budget for whites is nearly twice that for blacks. One of the mmediate effects of the de Lange Report was a rapid increase in the budgets of the central Department of Education and Training. In 1984 - 85 when total spending on education was 16.8% of overall state expenditure (compared with defence's 15%), the budget allocation to the DET increased by 26% over the previous year. This will nevertheless have a very limited effect on real development (in terms of the criteria in the table above) when one considers the effects of inflation and the long-overdue rises in teachers' salaries, which comprise very nearly 80% of the education budget.

For the future, the White Paper proposes the setting up of a subsidy formula, based on 'financially realistic norms for the provision of a functionally adequate quality of education, irrespective of race, colour, creed or sex', under which the central government would determine its financial responsibility towards the separate (ethnic) education departments. In addition, however, the education authority for each group would have authority to supplement these finances by means of levies, and direct parenpport would also be required. Given the very different economic and financial capabilities of the various communities at present, these proposals are likely to result in the continuatic bf inequalities, but at a less discriminatory level than previously.

#### The quality issue in education

Important as financial equity is (and its progress will need to

be carefully monitored as an indicator of government commitment), of itself it could lead merely to an expansion of numbers, 'more of the same', without any major impact on the issues of quality, relevance and community acceptance, which are fundamental to the level of contribution which education makes to individual and national development. Particularly in the education of black South Africans over the last ten years, quality has had to take second place to an emphasis on numbers. This is not to under-value what has been a period of rapid growth: for example, since 1976 the number of black pupils successfully completing Standard 10 has increased fivefold, and in the years since 1980 more black pupils have passed Standard 10 than in the whole history of black education previous to this. But this has to be measured against a serious falling-off in standards: since 1978 the percentage of pupils passing Standard 10 has dropped from 76% to 48%, and the percentage gaining matriculation exemption from 33% to under 10%.4 Moreover, only 225, or 5% of successful matriculants, gained aggregate symbols of C (60% +) and above; the majority (60%) pass at borderline levels. This has, and will continue to have, (because significant improvements cannot be expected), serious consequences for tertiary education and the work situation, in both of which experience has shown marked inadequacies in the educational background of young black adults. In 1983 only 3.6% of the total Standard 10 entry gained a pass in Higher Grade Mathematics and 2.7% in Higher Grade Physical Science. Even in English (Second Language Higher Grade), the medium of instruction and general tool of communication, only 36% gained a pass. There is no question but that declining standards in English are significantly affecting black pupils' capacity to cope with other key school subjects.

#### The black teachers

Quality in education is in the first place dependent upon the 'quality' of the teacher — his qualifications, experience, competence in the classroom, professional confidence and commitment. In all these areas the black teacher is under siege and fighting for survival. More than half of the total teaching force of 120 000 is under the age of 30, 17% are professionally unqualified/untrained, and only 24% have an academic qualification of at least senior certificate, now the minimum for entry to training, for official registration and for parity of treatment in terms of salaries. The number of graduate teachers in 1983 (excluding TBVC\* countries) was 1 651, enough on average to provide each post-primary school with little more than one per school. Under these circumstances, with the majority of black and coloured teachers in need of 'upgrading', the in-service education and training of teachers (INSET) is widely recognised as having high priority. In addition to departmental programmes follow-

Table 1. Education indicators.

	Total number of pupils	Unit costs (R) 1982 - 83 .	Teacher- pupil ratio	Qualifications of teachers		Senior Certificate 1983	
				Prof. unqual.	With Std 10+ (%)	Total passes (%)	Matric exemption (%)
White	986 276 (1983)	1 211	1:17	2.3	97	91.8	46.6
Indian	229 289 (1983)	711	1:23	11.0	82.3	86.7	42.4
Coloured	766 179 (1982)	498	1:26	8.0	40.9	71.3	15.2
Black	5 323 292 (1982)	134	1:44	16.9	23.6	48.3	9.8
Dept of Ed & Trg*	1 626 875	156	1:41	15.1	20.8		
National States†	2 034 610	118	1:46	22.3	24.4		
TBVC countries:	1 661 816	132	1:45	12.5	25.9		

The Department of Education and Training is responsible for the education of black pupils at schools in 'white' South Africa. †The self-governing 'homeland' states within South Africa. ‡Transkei, Bophuthatswana, Venda and Ciskei.

<sup>\*</sup>The TBVC countries are indicated in the footnote to Table 1.

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ing conventional 'course' lines, there is a growing involvement of the private sector in the funding of more innovative approaches to INSET, most of which are not centralised but work with groups of teachers in the schools of a particular area and have often a strong curriculum development component. It is probable that more teachers are involved in these programmes, in which teachers' professional associations play an increasingly important part, than in those run by education departments. However, even these combined efforts are having limited effect: only a massive national scrategy will be able to cope with the numbers involved.

Nor will the problem be solved by giving attention to qualifications and professional competence alone. The aftermath of the years from 1976 to 1980 has taken its toll on the teachers, for many of whom it was a traumatic experience in which they were subjected to intense and conflicting pressures from pupils, parents and officials. Morale is still low: teachers cannot commit themselves fully to their work in a system to which the majority do not subscribe. Add to this that many are inexperienced, underqualified and dealing with over-large classes, then it is not surprising that their classroom style is one of survival, characterised by dependence upon the textbook, disinclination to allow pupils to question and discuss, and discipline which is rigid and authoritarian. It is a period which has been marked by an increase in corporal punishment, most often caused by insecurity and inability to cope with an increasingly difficult, unsettled school situation. The recent, country-wide school boycotts and protests are indicative of this.

## Non-formal, adult education

It is clear that the reform and regeneration of the disadvantaged school systems will be a slow and painful process: in the meantime society is faced with 5 to 6 million adults who either did not go to school at all or 'dropped out' before becoming functionally literate, with thousands of young secondary school-leavers who failed to gain a certificate, and with the frustrations of underachievement among those who, in terms of certificates, have succeeded. The response of the de Lange Report to this situation was to stress the crucial importance of continuing programmes of non-formal, adult education to provide a 'second chance' for people who are educationally disadvantaged and to deal with the 'unfinished business' of the school systems. Within this broad area, high priority must be given to what has come to be called basic education, defined as 'a set of basic skills (literacy, numeracy, social), knowledge and attitudes which will enable learners to take charge of their own lives and set them free to learn further'.5 To be acceptable to the user this must not be an 'iron rations' approach, but the creation of a platform on which further education and training can be based. It is as crucial to the economy as to the broader needs of society. Government must accept and support the crucial role in this field of training within commerce and industry, of private sector 'social responsibility programmes', community agencies and of the universities through their centres for comtinuing (adult, extramural) education. In the medium term, nor-formal, adult education will, necessarily, be mainly a rescue operation; in the longer term it will prove to be an integral part of the continuum of lifelong education, critical in serving the needs of a society subject to rapid social and technological change.

## Technical education

There is a strong tendency at present to try to find solutions to the needs of society with an emphasis on technical education, or in the broader concept of 'career education' proposed in the de Lange Report. Certainly, technical education has been neglected in the past, particularly in the options open to black youngsters, but ar over-emphasis at the school level would be equally mistaken. The responsibility of the school is to provide

a sound general educational background, to give pupils some basic experience in various directions, and when a specific direction is chosen (at about the tenth year) to ensure that it provides a broad foundation, not narrow vocational skills. It is much more important that a pupil should receive a sound grounding in language, mathematics, science and technical drawing, and has learnt to be adaptable and think for himself, than that he should get involved in specific skills training, until he has at least one foot in the work situation. In spite of the importance of technical education, there are serious reservations in black communities about the present thrust, not so much arising from the earlier tendency to seek white-collar jobs (understandable, because this was the only way towards upward social mobility), but rather from a suspicion of the motives behind the emphasis on 'manpower' and 'economic growth'. What is that economic growth to be used for? Is it to be used for change in society - and for what kind of society? - and for the benefit of all the people of South Africa, or is a strong economic base merely to be used to preserve the status quo? There is a lack of confidence both in government and in the so-called 'free enterprise' economic system that will have to be dispelled before technical education will be seen to be as relevant to the needs and aspirations of these communicies as to the wider South Africa.

## Education in rural communities

Within the limits of this brief overview there is space only to comment on one further area of concern: education in rural communities. Two-thirds of the black pupils at school come from what can broadly be described as rural environments, in the homelands, the TBVC countries and farm schools in the RSA. In terms of resources, facilities and financing they have been discriminated against to an even greater extent than pupils in the urban areas under the DET (see Table 1). Yet these are the areas where poverty, disease and unemployment are far more serious than within the 'central core' of South Africa. The backlog in these areas has been recognised in the 1983 White Paper, which states the intention of government to pay special attention to farm schools (m which there are about half-a-million pupils) and to apply the same financial subsidy formula to the 'national states' and TBVC countries as to the DET and other departments. With increased resources available the answer will not be to create something called 'rural education' - the lines between urban and rural are in any case becoming increasingly blurred - which will be interpreted by the user as compounding discrimination and inequality. Rather what is needed is greater flexibility and adaptability (in syllabuses, approaches, 'style') in seeking to fulfil the learning needs of children and adults in rural situations - needs that are not fundamentally different in kind but have to be met in varying environments. Third World experience has shown that the school by itself has very limited 'development' possibilities: it is most successful when it is contained within a comprehensive development strategy in which adult education agencies and other social instruments work together with the school in a common direction. Little has been done in South Africa to come to grips with this issue: in the decade that lies ahead it may well prove to be one of the more intransigent areas of education reform.

#### Conclusion

The emphasis in this article has been on the education of black South Africans, not only because they are deserving of priority in terms of numbers, but more importantly because it is in this area that South Africa remains in a state of educational crisis. It is so because the government 'White Paper has failed to address the fundamental issue which originally brought the de Lange investigation into being - the separation and isolation of the black education systems and their failure to meet the needs and aspirations of the people they were set up to serve'.6 There is some recognition of this issue, subject to the maintenance of

separate education systems, in the recent legislation' setting up a general Ministry of Education which will be responsible for general policy in respect of norms and standards for the financing of all education, for syllabuses, examinations and certification, and for salaries, conditions of service and professional registration of all teachers. A South African Council for Education, with various professional sub-committees, representative of all groups in the RSA, is to be set up to advise the minister of general education affairs and, where relevant, the four separate ministries. In that the SACE is to report annually to Parliament, and, depending upon the quality and independence of its members, this Council may well prove to have some potential as an agent of change in education, alongside the professional teachers' associations, among whom, with the exception in particular of the Transvaalse Onderwysersvereniging, there is a growing movement towards unity. The government's commitment to equality of treatment will undoubtedly lead to an improvement of the material circumstances of the presently disadvantaged systems, but the attempt to achieve reform through the coordination of separate systems is unlikely to resolve the present

crisis, in which the legitimacy of, and the authority behind, the 'black education' system is constantly challenged and often rejected. Education systems are most effective and relevant when they have the acceptance of the user (learner, teacher, parents, community), when the user is involved and participates in the education decisions that are made, and when the user is in broad agreement with the view of man and society that informs the philosophy on which the education system is based.

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# The Southern Oscillation and rainfall patterns in the Southern Hemisphere

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Spectral and filter analyses indicate that various 'cyclic' components of the Southern Oscillation, with periods greater than about 5 years, correspond very closely with similar components in large-scale regional rainfall series from many parts of the southern hemisphere. Explanations are proposed to account for such agreements.

Spektrale en filteranalises dui daarop dat v 'sikliese' komponente van die Suidelike Ossillisie met periodes langer as 5 jaar baie nou ooreenkon met soortgelyke komponente van die grootskaalse stryksreënvalserie vir 'n hele aantal gebiede in die Suitelike Halfrond. Verklarings vir hierdie ooreenkomst word aan die hand gedoen.

#### Introduction

In the 1970s Tyson and Dy reported evidence for the existence of weak fluctuations in South African rainfall with periods of sixteen to more than thenty years, of ten to twelve years, and of about six to sever years.1-3 Other shorter-term 'cycles' were evident as well. Mater papers by Tyson and Dyer4-6 reinforced these conclusions, which were again supported independently by Vines,7.8 pmg rather different methods; there was also some indication of a longer-term fluctuation, of the order of 30 to 60 years (again in agreement with the findings of Tyson and Dyer), but because the records were of limited duration this was difficult to substantiate.

Of particular interest was the fact that such quasi-periodic

variatio in annual precipitation over South Africa (since approximately the turn of the present century) were reflected in filar rainfall fluctuations in south-eastern Australia and asmania, New Zealand, and southern South America.7- # Furthermore, the quasi '20 year' fluctuations were essentially in phase in all these areas. 7.1.12.16 The same was true for the quasi '7 year' fluctuations, with the exception of that for South America which was exactly out of phase with the others.16 However, for the quasi '10 year' fluctuations the situation was more complicated; in southern South Africa, south-eastern Australia and South America, these were in phase — whereas the corresponding fluctuations in north-eastern South Africa, Tasmania and New Zealand were exactly out of phase, although in phase amongst themselves. 7,8,16

Tyson<sup>17</sup> has accounted for the long-term rainfall variations in Southern Africa by reference to changes in pressure and circulation patterns over the subcontinent. As a result, in an attempt to find some adequate explanation of the observations outlined above with respect to other areas of the southern hemisphere, a study of the Southern Oscillation has been undertaken; the results of the investigation are briefly described in this paper.

## Methods and procedure

In our previous studies,7-16 we have subjected sets of annual rainfall records from various towns or districts to filter analysis,

†The Southern Oscillation is a see-saw of atmospheric pressure between the Pacific and Indian oceans, which produces associated changes in rainfall, temperature and winds, mainly in equatorial regions. It is generally considered to be irregular in nature, although it is certainly recurrent with intervals between major events ranging from two to as much as ten years. The present work suggests, however, that the Southern Oscillation may be rather more regular than is usually supposed.

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