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EDUCATION AND SKILLS FOR THE ECONOMY AND LINKS TO LABOUR MARKETS IN SOUTH AFRICA

Report for the Economic Task Team of the National Planning Commission
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The National Planning Commission is releasing

this Position Paper for public comment.

Feedback should be provided in

writing by July 6, 2020.

We request that submissions be made to:

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Education and skills for the economy and links to labour markets in South Africa

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A NOTE ON THE 2020 CORONAVIRUS PANDEMIC

30 April 2020

The current report was completed before it had become clear that the 2020 COVID-19 pandemic would become a major disruptor influencing the world in several ways. How, in the opinion of the authors, does the pandemic influence the findings of the report?

It must be emphasised that there is currently much uncertainty about the new coronavirus. Much of this uncertainty should be cleared in the coming months. From an education angle, what is vital to watch is what appears to be a shift towards an understanding that children are not only unlikely to become ill, but are also unlikely to transmit the virus. This would in many ways overturn what has been a strong emphasis on closing schools.

It seems unlikely that current school closures will impact substantially on the current upward trend with respect to learning outcomes. The basic education system is probably sufficiently resilient to compensate for time lost through various forms of catching up, some of it structured, and some unstructured. If the pandemic impacts negatively on the learning outcomes trend, this would probably be through more indirect effects, such as through lowered cooperation between government and teacher unions in a context of shrinking purchasing power for teachers due to the longer-term effects of the pandemic.

With regard to messaging, COVID-19 may in fact create opportunities. Illiteracy among young children needs to be detected, as proposed in the current report, and acted upon. There are obvious parallels between this and the testing and action taken in relation to the coronavirus.

The pandemic greatly worsens the prospects for progress at the post-school level. This is largely because the pandemic will shrink the fiscus in various ways. The tension outlined in the current report between ambitious and necessary enrolment increases on the one hand, and recent increases in unit costs, on the other, will be exacerbated by the pandemic. This makes it more important than ever to explore the diversification of funding proposals of the report.

This report did not deal in depth with technological innovation in education, though one of the four main priorities put forward by the report is more informed and cost-sensitive planning in this area. South Africa is behind other middle countries by not having a clear national strategy on e-education, not having the specialised institutions within government to take this forward, and in terms of actual access to technologies in schools. The pandemic has brought to the fore these deficiencies. This might actually help to accelerate progress in this area.

The pandemic is likely to destabilise the politics of the education sector as previously unanticipated scenarios become a reality: a surge in the interest in distance education; a rise in poverty among children and youths; and unprecedented budget constraints. This makes it more important than ever for government to manage information and communication well, so that the policy discourse can be as informed as possible. This is something which was emphasised strongly in the report. Breaking down statistics by socio-economic status and population group, and interpreting what they mean for action, needs to be done better. In part this needs to be done to highlight where progress has been made, so that enough attention can go towards protecting those gains, and ensuring they are not reversed. Better information on the quality of education institutions, a sensitive matter, can help to direct the public focus towards this critical matter.

EXECUTIVE SUMMARY

This paper, prepared for the National Planning Commission (NPC), examines progress in the education sector against the National Development Plan (NDP), but also assesses the NDP itself. In hindsight, **how well-placed and realistic were the education priorities of the NDP**, which was released in 2012? Have developments since then shifted what can or should be done? While the paper focusses on the education sector as a whole, the focus on basic education is somewhat stronger, given that a separate paper deals specifically with selected post-school topics.

The paper is the outcome of discussions with selected National Planning Commissioners, and other relevant experts and stakeholders. It also presents some new data analysis, focussing on technical subjects in schools, as well as South Africa's international standing with respect to secondary school completion and post-school qualifications.

The paper concludes that the NDP's coverage of education is good, and that with regard to the education sector, the plan still represents **an excellent tool to guide the national policy debates and more detailed implementation plans**, up to at least 2030, the time horizon of the NDP. Crucially, the paper does *not* conclude that there is a need to revise the education part of the NDP. There are elements which have become redundant, or which could have been explained better, but on the whole the NDP provides relevant guidance. The position of the paper is thus that instead of devoting effort to revising elements of the plan, efforts should rather be devoted to taking the NDP forward, in ways explained below.

The international evidence on what promotes economic development in the long run has shifted the policy emphasis strongly towards the **quality of basic education**. It has also stimulated interest in measuring the basic literacy and numeracy competencies of school learners, and contributed towards an extensive system of international testing programmes. The NDP's focus on improving the quality of schooling in South Africa is in line with this evidence.

Another strand of economic evidence focusses on the **income returns to acquiring additional years of education, and additional qualifications**. This evidence supports the NDP's focus on ensuring that all South Africans obtain at least some educational qualification, and that many more than is currently the case acquire a post-school qualification, either at a university or through some more vocationally oriented route.

Despite recent improvements, **key education indicators point to South Africa being behind other middle income countries**. The quality of schooling can be said to be at a level more typically associated with a low income country, for instance Lesotho or Nepal, than a middle

income country. Youths in South Africa are about half as likely to acquire a university degree than youths in countries such as Brazil or Turkey. Currently, only around 8% of South Africa's youths do. (Around 19% of South African youths currently get to obtain *any* post-school qualification.)

Yet **some of South Africa's education statistics are at a level one would expect from a middle income country**. Successful completion of twelve years of education, currently achieved by 57% of youths, is typical. Pre-school and school enrolment statistics are normal to high.

For progress to be made where South Africa is behind, it is important to examine historical factors. The apartheid legacy makes it **particularly important to track achievement by population group**, and to promote the educational outcomes of the historically disadvantaged. The legacy of poor quality education is clearly rooted in the exclusionary policies and segregated teacher training of the apartheid era. However, there may also be additional regional factors. Botswana, a country South Africa has been trying to catch up with in terms of the international test scores, is itself an under-performer among middle income countries, and performs worse than Kenya, a low income country.

A table of indicators appearing after this executive summary sums up the recent past, and the likelihood of further improvements envisaged by the NDP. The focus in the table is largely on educational outcomes (as opposed to the internal dynamics of the education system). The percentage of learners in the schooling system displaying what are now widely accepted international minimum levels of competency varies, depending on where one focusses, but key figures are the following. Only 22% of Grade 4 learners reach a minimum level of reading. In Grade 9, 39% of learners reach a minimum level in mathematics (though this minimum level is actually intended for Grade 8). What is good, is that **for almost twenty years, there has been a gradual upward movement in the competencies of learners**. In fact, this upward movement is about as fast as one could expect, given what has been seen among the strongest improvers around the world. The sobering reality is that educational quality, at least for whole countries, advances more slowly than one would want. The NDP envisages 90% of learners achieving minimum competency levels by 2030. While this is a noble goal, even with a healthy rate of improvement, it would be difficult to exceed 60% by 2030, at least if the standards of the UN Sustainable Development Goals (SDGs) are used. This may seem pessimistic, yet many developing countries today are well below a level of 90%. For instance, in Iran only 65% of Grade 4 learners reach a minimum reading level, using international standards, while in Morocco the figure is an even lower 36%.

Turning to the acquisition of university qualifications, it is important to distinguish total qualifications issued in a year, currently around 260,000, from **the number of people obtaining a university qualification for the first time**, currently around 170,000. The latter comes to about two-thirds of the former. The distinction is important, because if someone acquires, say, a second university qualification, this does not add to the number of university-qualified people in the labour market, even though one assumes the level of skills of the individual has risen as a result of the second qualification. The NDP's goal is for universities to graduate 425,000 people each year by 2030. We can assume around 320,000 of these graduations would involve the first-time acquisition of a university qualification. If trends seen since the late 1990s continue, then it is feasible for South Africa to reach, or almost reach, these targets by 2030. However, as discussed below, an anticipated rise in the average public cost per student after 2012 poses a serious challenge.

What about post-school qualifications outside universities? The NDP envisages the number of people qualifying as **artisans** to increase to 30,000 by 2030. The current figure is just above 21,000. Though the NDP has no graduation targets for **TVET colleges**, enrolment is expected to increase from around 880,000 today to 1.25 million by 2030.

In line with practices elsewhere, the NDP emphasises the importance of **mathematically-oriented studies** at universities, in areas such as engineering and financial management. With regard to schools, there is an emphasis on mathematics and physical science, but also more vocational and technical education.

Increases in post-school enrolments in recent years are the result of a combination of factors, including improved budget allocations for the sector, and demand brought about by larger numbers of Grade 12 graduates, particularly graduates qualifying for degree or higher diploma studies. What lies behind the qualitative improvements in the schooling sector is less easy to identify, yet for planning purposes it is clearly important to understand, as far as possible, what the critical drivers of change are. The position of the Department of Basic Education (DBE) is that **better access to books, more assessing of learners, and clearer curriculum guidelines** for teachers lie behind the improvements. This seems plausible, but also suggests these inputs should be protected at all costs, and further strengthened.

Developments since the NDP's release in 2012 have in some cases facilitated the pursuit of the NDPs goals, while in others have arguably made this more difficult.

Ground-breaking research initiated by the DBE into **the impacts of various interventions to improve early grade reading** have greatly clarified what needs to be done in this area. Essentially, a model of teacher training, involving some individualised coaching of teachers, combined with access to specific learning materials, results in substantial improvements in the reading competencies of lower primary learners. These findings strengthen South Africa's ability to respond to the worldwide call for a stronger focus on fixing early grade reading, which is fundamental for all subsequent education. Government's clear commitment to reading is perhaps best captured in President Ramaphosa's June 2019 State of the Nation Address, which says that in ten years 'every 10 year old will be able to read for meaning'.

The 2019 announcement by government that a Grade 9 national examination and certificate would be introduced, represents a major structural change, one which comes with new opportunities and risks. Insofar as clearer standards improve quality at the lower secondary level, it supports the NDP's goal of better completion of upper secondary schooling. However, the Grade 9 certificate could also have the effect of taking attention away from the need to strengthen school-level monitoring systems at the primary level. It is important to bear in mind that **currently 43% of youths – 100% minus the 57% who successfully complete twelve years of education – do not obtain a qualification of any kind** with which to navigate either employment or further studies after school. This is clearly problematic, and is a key reason why the new Grade 9 certificate is being introduced (around 88% of youths do successfully complete Grade 9, based on standards set largely by each school). The NDP envisages that by 2030, 80% to 90% of youths would complete twelve years of education, either in a school or TVET college. However, historical trends suggest that a more likely outcome is that 65% of youths would achieve this by 2030 (this would be a level comparable to that found in China today). If 35% of youths do *not* successfully complete twelve years of education by 2030, this strengthens the argument for some qualification before Grade 12 in the schooling system.

Turning to post-2012 setbacks, **the halting of the Annual National Assessments** (ANA) programme in 2015, due to union opposition, clearly removed a key pillar of the NDP's envisaged monitoring and accountability system for schools. ANA involved universal testing of learners, with a specific focus on grades 3, 6 and 9. In many ways, arguments put forward by unions were valid: the programme suffered technical flaws and its purpose was not clear in policy. This points to the need for very clear policy in future, for instance in relation to the proposed Grade 9 examination, and for greater technical capacity in the DBE in the area of assessments.

The **#FeesMustFall protests at universities, starting in 2015, resulted in major per student spending improvements** in universities and TVET colleges, especially from 2018. Had spending *per student* remained unchanged, these spending improvements would have been large enough to cover the NDP's envisaged increases in university enrolments. This provides a sense of the magnitude of the budgetary shifts. However, the additional funds will be directed at better funding per student, especially historically disadvantaged ones. While this is desirable, it also means that the enrolment expansions envisaged by the NDP become much more difficult to achieve, from a budget perspective, than was initially thought.

The recent per student cost hikes in post-school education take South Africa from being an average spender per student, in an international context, to one that is slightly above average, by 20% or more. Yet, the fact that university enrolments remain at about half of what they should be, still leaves South Africa as a net under-spender when it comes to post-school education. This is with regard to public spending. What makes South Africa unusual, is a combination of highly ambitious post-school graduation targets, combined with little in the way of proposals around how funding sources can be diversified. Other countries, such as **India and China, which have seen major growth in the university sector, have to a large extent achieved this by facilitating more private and foreign involvement in the sector**. A 2019 World Bank report provides a valuable analysis into what diversification of funding strategies might work, from a practical and political standpoint, in South Africa. Especially after the recent increases in public spending per student, exploring other options has become vital if the post-school sector is to grow as anticipated.

Following a doubling of public TVET college enrolments between 2010 and 2014, enrolment numbers were essentially frozen due to budget constraints and a concern that **the quality of TVET education needed attention before enrolment was expanded further**. If the economic context improves, and if the college sector can produce a second surge in enrolments which doubles the size of the sector, the NDP's targets can still be met. However, given current fiscal and capacity constraints, this may be overly optimistic. Here too, exploring ways of diversifying funding sources is important.

The education system is large and complex, and in certain respects, the available information and knowledge is weak. There is much work that the various stakeholders, including the NPC, must do, yet prioritising tasks is not easy. In education, the evidence, on the one hand, and public opinion can pull in different directions. The NPC is well-placed to 'steer' the debates in a manner that promotes a more informed public discourse. The NPC is also well-placed to advocate for investment into critically needed research and the proper design of policies and systems.

A 2018 NPC paper put forward the following five proposals:

1. Restore confidence in the appointment of school principals.
2. Monitor school performance.
3. Raise standard of reading comprehension and numeracy in the Foundation Phase.
4. Strengthen youth pathways from learning to earning.
5. Drive equitable access for poor and working class students to higher education and training.

The current paper uses these proposals as a point of departure in advocating the following four priorities.

Priority 1: 'Reboot' the NDP's focus on accountability in the schooling sector. While DBE and the provincial education departments at least nominally promote accountability in the schooling sector, details on how better accountability will be built up over the years is

largely absent from their plans. One of the strongest parts of the NDP's section on schooling is a description of an envisaged 'results oriented mutual accountability system', centred around the school and the school principal. Taking this forward implies specific policy and political work. More discussion is needed between the departments, teacher unions, school principal associations, and organisations representing parents, on how existing 'social pacts' can be taken forward to encompass what is envisaged in the NDP. It also implies specific technical work. Though the NDP does not envisage school report cards, simple annual reports which assess the learning outcomes trends of schools, and how schools compare to other socio-economically similar schools, are implied by the NDP's focus on providing information on school performance to parents. ANA has demonstrated how counter-productive technical flaws in well-intended accountability systems can be. There are lessons from abroad and from within South Africa, for instance in relation to the Data Driven Districts initiative, which should be considered when taking tools such as school report cards forward.

It is important to see innovations with respect to support to teachers, such as in early grade reading, and accountability tools, as complementary. Schools and teachers need the right materials and methods to teach, say, early grade reading, but they also need to be accountable for ensuring that historically low levels of literacy are improved, and this requires accountability systems. At the heart of the accountability reforms should be the professionalisation of the country's corps of around 25,000 school principals.

Priority 2: Stimulate the debate on how best to improve and monitor reading in the early grades. While important South African research, largely driven by government, has emerged in recent years on how to teach reading better in primary schools, the uptake of this research is still weak, judging for instance from the annual plans of a couple of provincial education departments. Not just teachers, but parents and society at large need to understand what good and bad classroom practices look like. There are interesting programmes outside South Africa where parents have been empowered with simple methods to gauge whether their children are behind in their reading. In short, parents need to be mobilised in the push to eliminate functional illiteracy among children.

A difficult question is how better measures of primary school performance, for instance in areas such as the reading skills of learners, can be realised. Such measures are envisaged by the NDP. The obvious solution is a new universal testing system, which would replace ANA. This should be the ultimate aim, but technical capacity constraints, the inherent difficulty of designing such systems in a manner that allows for progress at each school to be reliably measured, and teacher union unease around standardised testing all suggest that a new universal testing will not be introduced very soon. There are second-best options, however. Parts of the schooling system have experience with simple 'dipstick' approaches for gauging the reading skills of learners, involving the collection of assessment data through tablets or smartphones. While such approaches are insufficient to form the basis for rigorous system-wide accountability, they can help in raising awareness among, for instance, school district officials, of where the problems lie.

Priority 3: Insist on better monitoring of sectoral trends. The monitoring of trends and progress in the education sector is often weak. Inaccurate, unclear or missing information is common. This compromises not just government planning work, but the public debates which influence education policymaking to such a large degree. To illustrate, the plans of the Department of Higher Education and Training (DHET) suggest that more should be done to monitor the impact of the post-school sector on societal trends, including the acquisition of qualifications in the population, and employment. DHET's own extensive database of students should be used better for planning purposes. In particular, it is important to link these data to the learner record data the DBE has, in part to clarify movements between schools and TVET colleges, and the extent to which youths are 'double-dipping' in the sense of obtaining two qualifications at the same level, first in a school and then in a college. Moreover,

spending per student at the sectoral and sub-sectoral level should be better monitored and projected into the future. This could make future budget constraints clearer, and bring forward the debate around the diversification of funding sources. A part of the challenge is to use existing data in better ways, but there should also be a lively debate around where investments into new information systems should be directed. Little is known about the quality of the various post-school institutions, and the inequality of this. This is unlike the basic education sector, where there is considerable emphasis on narrowing quality gaps between historically advantaged and disadvantaged schools, based on data. In the post-school sector, other countries have successfully experimented with ways of generating data on the relative value of particular qualifications. One option is to gather and make public employment data on students leaving specific institutions with specific qualifications. This can both help students to make choices and stimulate debate around why certain university programmes lead to better opportunities than others

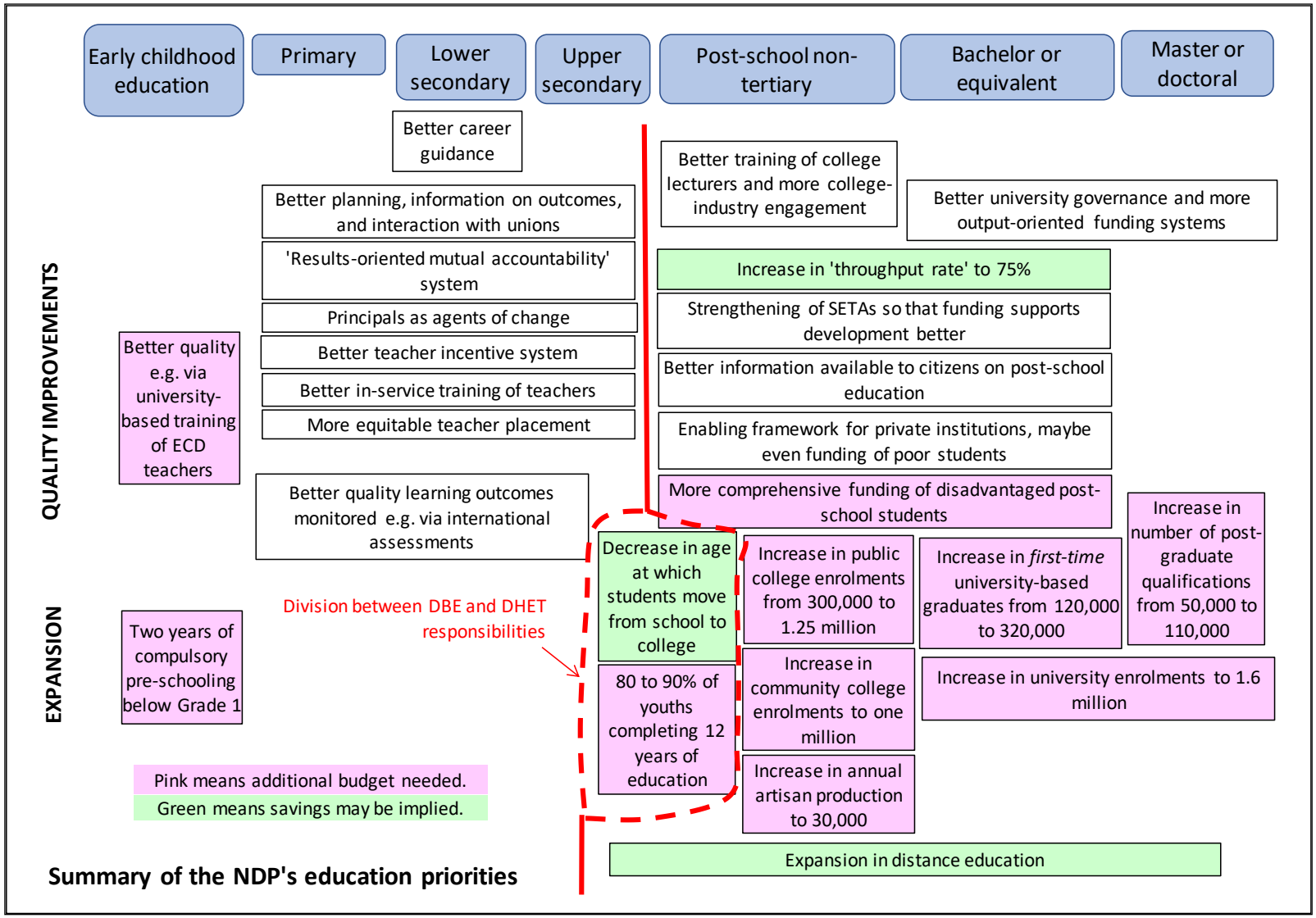
In basic education, the DBE could make it clearer that educational outcomes are improving in South Africa, to counter a sense of despair or scepticism, but also to stimulate the debate around what is causing this change.

Priority 4: Provide direction in the technology-intensive 4IR and e-Education policy spaces. The Fourth Industrial Revolution (4IR) concept is now commonly used in South Africa's education policy debates. This is a concept which emerged after the NDP was released. Government needs to clarify exactly what the concept means for the education sector, and emphasise that while it may change some of the modalities for achieving the targets of the NDP, it does not invalidate or replace in any way the fundamentals of the plan. There needs to be a balance between more long-range envisioning and planning for more immediate interventions, in particular those aimed at addressing the low levels of access to new technologies among the historically disadvantaged.

A key initiative in the basic education sector is the Three Stream Model, which aims to provide more technical and vocational pathways at the secondary level. In part, this is about providing more so-called twenty-first century skills to youths. This could easily represent the most ambitious post-1994 reform in the schooling sector, apart from the undoing of the unequal apartheid funding models in the late 1990s. Clearly, much of the planning focus will have to be directed to this reform in the coming years. 'Low hanging fruits' include ensuring that existing technology subjects in secondary schools are accessed more equitably. Currently, while 56% of white Grade 12 learners take at least one technical subject, the figure for black African students is just 8%.

While the focus on acquiring a post-school qualification as a means of enhancing the employability of youths is important, it is important to remember that three-quarters of employed South Africans currently hold no post-school qualification. The NDP's targets, if met, would mean raising the proportion of youths who obtain a post-school qualification from the current 19% to about 40%. In other words, even in an optimistic scenario, in 2030 over half of youths would not go beyond having a school education. This underscores the importance of maximising the employability of school-leavers, for instance through access to more vocational and technical education at the secondary level.

The diagram and table appearing on the following three pages summarise the structure of the NDP's education goals, and the report's findings in relation to the NDP's indicators of progress on educational access, attainment and quality. The diagram draws very much from section 2.1, while the table draws from various sections of the paper, but particularly 2.1 and 3.3.


Early childhood education
Primary
Lower secondary
Upper secondary
Post-school non-tertiary
Bachelor or equivalent
Master or doctoral
QUALITY IMPROVEMENTS
EXPANSION
Better career guidance
Better training of college lecturers and more college-industry engagement
Better university governance and more output-oriented funding systems
Better planning, information on outcomes, and interaction with unions
'Results-oriented mutual accountability' system
Principals as agents of change
Better teacher incentive system
Better in-service training of teachers
More equitable teacher placement
Increase in 'throughput rate' to 75%
Strengthening of SETAs so that funding supports development better
Better information available to citizens on post-school education
Enabling framework for private institutions, maybe even funding of poor students
More comprehensive funding of disadvantaged post-school students
Better quality e.g. via university-based training of ECD teachers
Better quality learning outcomes monitored e.g. via international assessments
Decrease in age at which students move from school to college
Increase in public college enrolments from 300,000 to 1.25 million
Increase in first-time university-based graduates from 120,000 to 320,000
Increase in number of post-graduate qualifications from 50,000 to 110,000
Division between DBE and DHET responsibilities
Two years of compulsory pre-schooling below Grade 1
80 to 90% of youths completing 12 years of education
Increase in community college enrolments to one million
Increase in university enrolments to 1.6 million
Increase in annual artisan production to 30,000
Pink means additional budget needed.
Green means savings may be implied.
Expansion in distance education
Summary of the NDP's education priorities

SUMMARY OF KEY NDP INDICATORS OF PROGRESS

Area of progress	Baseline around 2012	Progress 2012 to about 2019	Current level (and rate of change) viewed against other middle income countries	2030 target	Feasibility, appropriateness and clarity of the target
Early childhood development					
Access: Proportion of children aged zero to three accessing early childhood development (ECD) services	Around 29% participating in pre-school.	Very little.	Level not unusual, perhaps above average.	All children, for ECD services viewed broadly. No pre-school participation target for this age band.	Feasible and appropriate, though specifics on educational services absent.
Participation: Proportion of children attending two years of pre-school	Around 92% for Grade R, and 75% for the year before this.	Grade R has improved slightly, from 92% to 94% (2018). The year below Grade R has remained roughly unchanged.	Level not unusual, though comparisons difficult as levels vary so much across countries.	All children.	Apparently feasible, appropriate and sufficiently clear.
Schooling system					
Completion: Proportion of youths successfully completing twelve years of schooling.	Around 51%, or 49% if only schools counted (and colleges excluded).	Figures have risen to around 57% and 54%.	Level about average, rate of change good.	In the range of 80% to 90%, but this includes colleges.	Not feasible. 65%, for colleges plus schools, would be feasible, given historical trends.
Quality: Proportion of learners achieving minimum competency levels.	Using UN SDG standards, ranges from 22% for Grade 4 reading to 39% for Grade 9 mathematics.	Relatively rapid improvement of one to two percentage points a year occurring.	Level remains exceptionally low, though rate of change good.	90%.	Any target above an ambitious 60% not supported by historical evidence.
Post-school outside universities					
Participation: Number of enrolled college students	657,690 in public colleges, with a further 115,586 in private colleges.	An increase in the two figures to about 710,000 and 170,000.	Level low. Post-school participation and completion in general around half of what it is in comparator countries.	1.25 million.	Probably feasible, despite budget constraints, but appropriateness depends on comparisons with less costly technical education in schools.
Participation: Number of students enrolled in Community Education and	300,000	No significant increase apparent.	See above.	One million.	Does not appear feasible.

Area of progress	Baseline around 2012	Progress 2012 to about 2019	Current level (and rate of change) viewed against other middle income countries	2030 target	Feasibility, appropriateness and clarity of the target
Training Centres					
Completion: Number of artisans qualifying per year.	15,000	An increase to at least 21,000.	See above.	30,000	Appears feasible, clear and appropriate.
Universities					
Participation: Number of enrolled students	953,373 in public universities, with a further 97,478 in private.	An increase of around 100,000, mainly due to private expansion.	See above.	1.6 million.	Desirable, but difficult with recent increases in unit costs.
Completion: Graduates per year, counting any university-based qualification	200,000 (public plus private).	260,000 (in public plus private) of which 180,000 degrees and 170,000 university qualifications obtained for the first time.	See above.	425,000	If upward trend since 1990s sustained, target is feasible. However, rising unit costs have become a major obstacle.
Completion: Doctoral degrees per year (excluding medical)	Around 1,500.	Around 3,000.	Level not unusual.	Around 5,000.	Important and feasible.

Contents

Education and skills for the economy and links to labour markets in South Africa

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7 March 2020

1 Introduction

This paper was commissioned by the National Planning Commission. Its focus is improvements in the education sector, with the nature of the focus expressed as follows in the terms of reference:

> This paper, largely a desk top study, should be a succinct analysis of the NDP vision 2030, what it proposed, its achievements, what it tried, possible gaps and recommendations for enhancing its short, medium and long-term impact. The emphasis of the paper will not only be on policy design but … also … on governance, accountability and execution.

At the NPC's request, the emphasis falls strongly **on educational improvement and the economy**, including education's role in tackling unemployment and income inequality, and the problem that, as the NPC puts it, 'skills shortages continue to choke the South African economy'[1].

Though the National Development Plan (NDP) acknowledges education as a human right and as a force for social cohesion, against the backdrop of the divisions and inequalities produced by South Africa's colonial and apartheid past, the NDP also pays considerable attention to education's role in the economy, calling it '**the single most important investment any country can make**'. This is in the introduction to the NDP's 34-page education chapter. Education is vital for 'eradicating poverty, reducing inequality, growing the economy by an average of 5.4 percent, and cutting the unemployment rate to 6 percent by 2030'[2]. Education should pay particular attention to empowering the historically disadvantaged, 'namely black people, women and people with disabilities'.

Skills of the highest order needed for **scientific and other innovation** are also emphasised.

Apart from examining how education contributes to the economy, to a limited extent the paper also focusses on what education takes from the economy, in terms of **public spending**.

[1] National Planning Commission, 2012: 323.
[2] National Planning Commission, 2012: 296-7.

While the paper focusses on education as a whole, the NPC has also commissioned a second paper looking into post-school education in more depth. The current paper thus **focusses fairly strongly on schooling**, as this is the only paper covering that area.

The level 1 headings of the paper are as required by the terms of reference, but below that the research team has structured each section in a manner which facilitate the key messages of the paper.

Section 2 **examines critically what the NDP puts forward** as solutions for the education sector. This examination occurs partly with reference to the substantial body of knowledge from around the world on how best to undertake education reform.

Section 3 examines **progress in the education sector** in terms of the NDP. It begins by describing important developments since 2012, when the NDP was published, in particular where these developments may have strengthened or weakened the uptake of the NDP's priorities. Both the formal adoption of the NDP's priorities in the plans of government, and actual progress, or lack thereof, in terms of critical indicators, are discussed. Some of the emphasis falls on simply understanding trends, given that monitoring systems have in some instances provided inconsistent or unclear information. Most of the statistics are from existing published or unpublished reports, though new analysis produced specifically for this report is also included.

Section 4 **summarises the recommendations of the authors of the paper**, but also of experts with whom discussions were held regarding the best way forward. These recommendations use a framework for educational improvement appearing in an earlier 2018 report produced for the NPC. Given the momentum already created by the NDP, it is likely to be efficient to continue to advocate for the NDP's priorities as originally formulated. But is this the case for all of the NDP's priorities? Should priorities be adapted, discarded or changed? How easy is it to do this? What have we learnt from seven years of NDP implementation? These questions are addressed. The emphasis falls strongly on critical educational outcomes, in part because this is also the emphasis in the NDP. For this paper, those critical outcomes include the quality of education with which learners leave schools and post-school institutions and the types of qualifications they obtain, but also the attitudes and values promoted by the education system which are necessary for national progress. Crucially, the recommendations for the way forward are informed by current budget constraints, but also the possibility that in future these constraints will ease.

Section 5 provides a conclusion, drawing largely from section 4. This conclusion brings into one section what was represented by two final level 1 headings in the terms of reference: 'What are the existing gaps in the NDP', and 'What recommendations (could be made) in respect of institutions, accountabilities, performance, implementation and prioritisation?' It seemed best to consolidate the discussion of NDP gaps and recommendations in this manner.

2 What were the proposals and recommendations of the NDP?

2.1 Key points from the NDP's education chapter

The following list sums up the various elements of the NDP's education chapter, with an emphasis on (1) overall strategic thrust, (2) envisaged policy changes, (3) envisaged systems changes, and (4) development targets. A more succinct description of the NDP's approach to education development appears in the diagram appearing together with the executive summary.

The list is arranged under the level 1 headings used within Chapter 9, which is titled 'Improving education, training and innovation'. Chapter 9 is not the only chapter of the NDP

of relevance to educational improvement. Chapter 3, on 'Economy and employment', has implications for the skills the education system should produce, while Chapter 13, 'Building a capable and developmental state', is relevant for all government departments. However, Chapter 9 is the only chapter dealing specifically with the education system.

Unless timeframes are mentioned in the list, there is no timeframe in the NDP. Many targets in the NDP do not come with a timeframe, though often it can be assumed that the target year is 2030, the time horizon of the plan. Many would view vagueness as problematic, but such practice is also fairly common in national plans, in part because political prerogatives dictate that targets are seldom realistic, meaning not specifying a timeframe is one way of not setting the system up for failure. The target can then be seen as a point that the system should be attempting hard to reach. The list explains where important issues are not made explicit. The intention is not to include every aspect of Chapter 9 in this analysis, but rather those aspects which are of most relevance to the focus of the current paper. There is a special focus on the elements of the plan which are strategically important, but difficult to take forward.

Early childhood development

- **Universal access to services catering for ages zero to three** is envisaged, in part through an expansion of existing programmes aimed at supporting mothers and caregivers in proper child support (pp. 299, 300). Combatting stunting among young children though public programmes is emphasised.

- **Two years of compulsory pre-schooling below Grade 1**, using existing Grade R as a point of departure, is envisaged (p. 300). The relative role of schools and pre-schools is not made explicit.

- Importantly, the **role of the private sector**, which is large in the case of pre-schools, is both said to be important, and said to be an impediment (pp. 299, 301). There is thus some ambiguity on this matter.

- In the post-school section of the chapter, having **university-based training of ECD teachers** is emphasised. This obviously has important cost implications (p. 316).

Basic education

- At the highest level, **improving the quality of learning outcomes**, particularly in languages, mathematics and science, and monitoring this in part through international assessment programmes, is emphasised (p. 305).

- It is envisaged that **90% of learners in grades 3, 6 and 9 would achieve minimum competency levels** by the end of each year, with the latter being defined as a 50% mark in tests and examinations. This risk that this 50% threshold could be manipulated is not something the plan takes into consideration.

- It is envisaged that the **schooling system would retain more learners**. Counting both schools and colleges, the aim should be for 80% to 90% of youths to complete twelve years of education. It is also stated that twelve years of education should be made compulsory (pp. 296, 306).

- It is envisaged that **Grade 12 graduates eligible for Bachelors studies** at a university would increase from around 120,000 in 2011 to some figure above 450,000 in 2030. 450,000 represents the number eligible for Bachelors studies in the areas of mathematics and physical science, meaning the overall target would lie somewhere beyond 450,000 (though this is not specified) (p. 305).

- In the post-school section of the paper it is argued that there has been **a decline in Grade 12 mathematics passes**, which must be reversed (p. 317).

- Strengthening **career guidance** in grades 7 to 9 is envisaged.

- The importance of **high-speed broadband for all schools** is emphasised, but little else about technology innovation in schools appears (pp. 303, 313).

- Innovative pathways for **skilled people to enter the teaching profession** are mentioned (p. 306).

- A more **pro-active and pro-poor approach for placing newly graduated teachers in schools** is envisaged (p. 307).

- The **in-service training of existing teachers is emphasised**, but how to innovate in this area is not clearly spelt out, though ICTs are said to present important opportunities (p. 307, 315).

- Better experience-related **pay increases** for teachers are envisaged, as well as **incentives** for teachers with scarce skills, displaying excellent performance, or working in remote areas. The difficulty of individually-based performance pay is acknowledged, and hence rewards paid to whole schools are advocated (p. 309).

- **Innovation in dealing with unions** is advocated, for instance through the sponsoring of union leaders wishing to undertake studies in critically important areas (p. 308).

- A better merit-based system **for entry into school principal posts** is advocated. This would include competency assessments along the lines of what is used in the rest of the public service (p. 309).

- A gradual shift towards **greater powers for school principals** in a range of areas, but excluding the determination of teacher salaries, is envisaged (p. 310).

- It is envisaged that **schools would become more accountable**, specifically in relation to performance in standardised tests (p. 311).

- **Sharing performance information with parents**, with a view to strengthening accountability, is emphasised (p. 303). The envisaged school-parent-district accountability system is referred to as the 'results-oriented mutual accountability' approach.

- Incentive schemes whereby **schools would be rewarded for improvements** in learning outcomes are envisaged (p. 304).

- With regard to **school infrastructure**, much of the emphasis falls on reducing costs, which are said to be excessive and increasing (p. 313).

Post-school

- It is envisaged that **university graduates, meaning qualifications of any kind obtained at a university, would increase** from a current (presumably around 2012) baseline of around 170,000 to 425,000 by 2030[3] (p. 319). Increases in university graduates should be concentrated in scarce skills areas, such as engineering and financial management (p.

[3] Department of Higher Education and Training (2018) implies that the 170,000 figure in fact excludes graduates in private universities, which would have roughly come to 30,000 in 2012.

319). Given that around 120,000 of the 170,000 are first qualifications obtained at a university[4], and given what appears in the following bullet, one can conclude that first qualifications should increase from 120,000 to around 320,000.

- It is envisaged that by 2030, a quarter of all degrees obtained would be **post-graduate degrees**. The need to increase the number of black African and woman post-graduates is emphasised. Moreover, the number of **doctoral degrees** (excluding medical doctors) would increase to 5,000 a year in 2030 (a 2010 baseline of 1,420 is mentioned) (p. 319)[5]. The total number of post-graduate qualifications obtained should, by implication, rise from around 50,000 to 110,000 (see previous bullet).

- While no targets are provided for college graduates, it is envisaged that **the number of artisans** produced a year would increase to 30,000[6].

- It is envisaged that an increasing proportion of youths entering colleges would **make the transition from school *before* completing Grade 12** (p. 320).

- **University enrolments** are envisaged to increase to 1.6 million in 2030 (a baseline of 950,000 in 2010 is mentioned)[7] (p. 319).

- A move to ensure that **disadvantaged post-school students are fully, not partially, subsidised**, is envisaged (p. 325).

- It is envisaged that **enrolments in colleges** should reach 1.25 million, the current baseline being 300,000. The reference seems to be to public colleges only[8] (p. 321).

- It is envisaged that participation in the adult education sector – in the process of becoming a system of **Community Education and Training Centres** – would increase from 300,000 to (it seems) one million (pp. 321, 322).

- An **expansion of distance education** in both the university and college sectors is envisaged (pp. 320, 321).

- It is envisaged that a large **improvement in the 'throughput rate'** of both universities and colleges would occur, with this indicator reaching 75%. No definition of the indicator is given, which is important as this indicator can be understood in several different ways. Moreover, no baseline figures are provided (pp. 319, 320).

- The risk of addressing targets through lowering graduation standards is acknowledged. It is claimed that poor quality already manifests itself in the form of **graduate unemployment**, though no figures are provided. A related concern is the failure of many

[4] If one compares the baseline value of 167,469 in the NDP to DHET enrolment reports, it becomes clear that this broad definition of 'number of graduates' applies. See in particular Department of Higher Education and Training (2013).

[5] The 5,000 target would put South Africa's doctoral degrees per million inhabitants on a par with countries such as Poland, Iran and Brazil. South Africa's 2017 situation was on a par with Thailand, Argentina and Turkey. It seems that with regard to doctoral degrees, South Africa is somewhat less behind than with respect to tertiary completion in general.

[6] Department of Higher Education and Training (2018: 92) refers to historical figures of, for instance, 15,277 in 2012, and 21,198 in 2016.

[7] Department of Higher Education and Training (2018: 11) refers to historical figures of, for instance, 953,373 in 2012, and 975,837 in 2016. This is for public universities. The corresponding figures for private would be 97,478 and 167,408.

[8] See statistics in Department of Higher Education and Training (2018: 33, 64). Examples of public college enrolments include 358,393 in 2010, and 657,690 in 2012.

graduates to meet the requirements of professional bodies, and here the figure is cited of just 10% of qualified engineers being able to acquire professional registration with the Engineering Council within three years after graduation (p. 317).

- Supposedly low levels of employability of college graduates is a problem which should be resolved (no figures provided). Moreover, strengthening arrangements with employers so that current low levels of **internship during studies** (only 35% of student who should do this actually do, it is claimed) is emphasised.

- Improving **the quality of public university education**, which is highly uneven across institutions, is said to require: better governance and leadership; arresting a decline in spending on universities and as a percentage of GDP; a stronger focus on incentivising graduation in the funding system; raising the qualifications of university staff; performance-based grants (with a pro-equity development element); bridging courses for disadvantaged student; and addressing infrastructure backlogs (pp. 317, 319, 320, 325).

- Improving **the quality training offered by public colleges** is said to require, above all: stronger industry participation in matters such as curriculum design; funding that is more stable; better job security for staff; the upskilling of lecturers (in part through working with industry); and stronger university participation in researching the college sector and training lecturers (p. 320).

- It is pointed out that there is too little **information available to citizens** on what post-school institutions offer, though no specific change in this regard is envisaged (and there is nothing on access by the public to institutional quality indicators, such as the employability of graduates) (p. 324).

- It is emphasised that the **private provision of university and college education** is important, and that government needs to provide an enabling environment. The only public funding of privately provided education envisaged, and this is not promoted strongly, is the possibility of public grants to poor students studying in private institutions (pp. 320, 321, 325).

- A situation where more **universities generate research**, as opposed to just teach, is envisaged (p. 318).

- The **Sector Education and Training and Authorities** (SETAs) are said to require major institutional strengthening, so that the substantial funding streams can be properly spent. However, what is not envisaged is any major policy change in this area (p. 323).

National research and innovation system

- To address the relative smallness of this system in South Africa, **a national policy framework** is envisaged as a major enabler of progress. This should prioritise more stable public funding, a better enabling environment for private investment, and removing barriers to the importation of skills where there are critical shortfalls (pp. 325-327).

2.2 The NDP's education approach and the international evidence

The NDP argues that **better quality schooling and a rise in the attainment of some post-school qualification** are vital for economic development and for tackling income inequality. This logic is supported by the international evidence. Even if the NDP targets are achieved, around 60% of young South Africans will not achieve a post-school qualification, meaning efforts to improve the employability of even school-leavers remains important.

The **international evidence on economic growth** has shifted strongly towards an emphasis on the role of education, in particular **the *quality* of education**. The shift was largely driven by the increasing availability of data on educational quality in schools, collected through a growing industry of international testing programmes. This allowed economists to model, generally by comparing countries, the impact of better educational quality on economic growth. The findings were very compelling, though impacts are clearly rather long-term. An improvement of 25 points in a testing programme such as TIMSS was found to be associated with a gain of 0.5 percentage points in annual economic growth[9] (South Africa's 2002 to 2015 improvement in TIMSS comes to 80 TIMSS points, implying a gain of 1.6 percentage points in GDP growth in the long run). The new economic arguments on the role of education were quickly adopted in the education policy literature. The 2005 issue of the *Global Monitoring Report* of UNESCO[10] is a good early example of this.

Apart from the evidence described above, the older micro-economic evidence on returns to investments in education has continued to support the strong link between **years of education and the acquisition of qualifications, on the one hand, and income or employment probability**, on the other[11]. One reason why this strand in the economic literature is currently less prominent in the policy debates is that, due to data constraints, it tends to focus on years of education, when in fact it is the *quality* of education which is known to be largely driving labour market returns. Furthermore, the micro-economic evidence focusses on fairly immediate returns, and does not consider longer term knock-on effects, such as the fact that more educated individuals are more likely to become entrepreneurs providing additional employment for less educated individuals. However, one aspect of the micro-economic evidence continues to be used widely by planners: the specific income returns associated with, for instance, completing secondary education, or holding a post-school qualification.

While the **NDP acknowledges the primacy of investing in education for economic development** and emphasises the quality of schooling, along the lines of the international evidence, it does not go into much detail, for instance around the economic roles of the different *levels* of education. It is instructive to consider what the NDP might have said in this regard.

The NDP does not explicitly acknowledge **how exceptionally low post-school participation and graduation is in South Africa** compared to other middle income countries, though it does so implicitly with its ambitious 2030 targets. Details on this aspect of South Africa's under-performance are provided in Appendix A below. This imbalance in South Africa should immediately raise concerns about skills shortages, but also income inequalities. An inadequate pool of workers with post-school qualifications is likely to drive the earnings of these workers up above a level at which they should be, thus exacerbating income inequalities.

The economic argument for increasing the number of young adults with post-school qualifications, in particular in specialisations where skills are scarce, is particularly strong in South Africa. A recent World Bank report focussing on South Africa describes **a tertiary degree as 'the door to the middle class'**[12]. Clear evidence that eligibility for university studies among school-leavers has become more equitable suggests that more post-school graduations also present new opportunities for across-class and inter-generational mobility, apart from addressing skills shortages in the economy[13]. Among Grade 12 graduates from schools serving poorer communities, eligibility for degree studies at a university has become far more common in recent years: quintiles 1 to 3 schools accounted for 35% of those eligible

[9] OECD, 2010: 18.
[10] UNESCO, 2005.
[11] Psacharopoulos and Patrinos, 2018; Branson and Leibbrandt, 2013.
[12] World Bank, 2018b: 53.
[13] Altman, 2019.

for degree studies in 2008, with the figure reaching 53% in 2019. Quintiles 1 to 3 schools enrol about 74% of all Grade 12 learners in the public system[14].

While in some countries over-production of post-school qualifications has resulted in **graduate unemployment**, South Africa is very far from experiencing this as a major problem. While the NDP (p. 317) points to the existence of some graduate unemployment, specifically where graduates do not hold relevant qualifications, the evidence indicates that the problem is small in South Africa[15].

Though promoting post-school education is important for the economy and employment, it is important not to lose sight of the fact that at least to 2030, the majority of youths will not obtain a post-school qualification, even if the NDP's targets are realised. Roughly, the realisation of these targets would result in around 40% of the young population getting to obtain a post-school qualification by the age of 35[16]. This still represents a major improvement, if one considers that the figure in 2018 was around 19%. In 2030, the remaining 60% would be left with either a Grade 12 qualification, or no qualification at all (at least in the absence of the proposed Grade 9 qualification discussed in section 3.1). Though unemployment rates are worse for people with no post-school qualification, such people still constitute three times as many workers as workers with a post-school qualification currently[17]. It is clearly important to maximise the employability of even those who do not obtain a post-school qualification. This entails ensuring, among other things, that all learners leaving the schooling system display minimum levels of functional literacy numeracy, and **improving access to more vocational and technical subjects within the schooling system**.

The 'three As' framework for thinking about educational improvement seems useful. The NDP's emphasise on **assessing learning** and on **aligning actors**, specifically aligning the system to supporting school principals and holding them accountable, is very much in line with the international evidence. The NDP could have been stronger on insisting that future policy innovation should be based on evidence, in other words **acting on evidence**.

The **evidence on how to improve schooling systems** is relatively mature. This is in part because schooling systems tend to work as integrated systems, with a national curriculum, fairly uniform provisioning systems, and often integrated data systems. Moreover, schooling systems in different countries have much in common. The post-school landscape tends to be more fragmented and country-specific, making learning across countries more difficult.

Today much of the emphasis when it comes to schooling systems is on improving learning outcomes, and specifically skills in core areas such as language and mathematics. **A global assessment industry and a proliferation of national assessments** have emerged to measure these outcomes. To a limited degree, there has been work on attempting to identify what lies behind large country-level improvements in learning outcomes over time. A different strand of evidence, where considerable work has occurred, is made up of experimental and quasi-experimental research into the impacts of various education interventions, such as teacher training, better materials, smaller classes, and so on.

There is a huge range of reports one can draw from dealing with factors behind improvements in schooling systems. South Africa has by now a relatively good stock of its own reports, in part due to investments made by the Department of Planning, Monitoring and Evaluation into

[14] In the schooling system, quintile 1 denotes most disadvantaged schools, quintile 5 least disadvantaged schools.
[15] Van Broekhuizen, 2016.
[16] This is the 19% seen in Figure 9 of Appendix A, with an estimate of additions up to 2030, based on the targets in the NDP, and the analysis of the current report.
[17] Analysis of 2017 General Household Survey data.

evaluating government programmes. Reports which summarise the available evidence from across the world are particularly useful. Two recent reports of this nature stand out: the World Bank's 2018 World Development Report, titled *Learning to realize education's promise*, and the 2013-2014 Global Monitoring Report (GMR) of UNESCO, titled *Teaching and learning: Achieving quality for all*. While all of UNESCO's Global Monitoring Reports (GMRs) are useful, the 2013-2014 one is particularly good at explaining strategies aimed at improving educational outcomes. The discussion that follows draws mainly from the more recent 2018 World Development Report (WDR), though the 2013-2014 GMR points in very much the same direction. This reflects an **increasing consensus across organisations such as the World Bank, UNESCO and the OECD around what should be done**.

The 2018 WDR packages its key policy messages as three A's: **Assess learning; Act on Evidence; Align actors**.

The WDR's **assess learning** priority is about obtaining sufficient information on how serious the overall learning deficits are, particularly in fundamental skills areas such as language and numeracy, and in particular at the start of the schooling cycle. It is also about generating data that can, firstly, shed light on exactly what learners can and cannot do and, secondly, be used to target support and enhance accountability[18]. The WDR provides some evidence that assessing can lead to improved outcomes[19]. The NDP, in its emphasis on the Annual National Assessments, clearly embraces the assess learning concept. However, what was not appreciated was the technical weaknesses in ANA, which contributed to its demise (see section 3.1). South Africa is not totally to blame for these weaknesses. There has been considerable confusion, even in guides produced by for instance the World Bank, on how to design censal (universal) standardised assessment which cover all schools *and* can provide reliable trend data[20].

Act on evidence is, according to the WDR, about the judicious use of evidence from rigorous evaluations of interventions aimed at improving learning outcomes. What has been proven to work? There is a warning to be particularly careful about untested interventions, or interventions where the evidence is weak. But there is also a warning that what works in one context, or country, may not work in another. Beyond rigorous research, there needs to be judicious consideration of the political, policy and social context[21]. The WDR's advice centres very much around evaluations of interventions. It also underlines the need to learn from recent findings in the area of neuro-science. This is important, but other forms of evidence are often forgotten. For instance, international comparisons of teacher pay can play a crucial role in guiding national policies. How misaligned enrolment and official population data are can reveal important things about monitoring systems and the schooling system as a whole. Behavioural research can clarify why schools do not function well. How strong is the NDP on emphasising the role of evidence in education planning? Here the NDP could have been stronger. There is not much in the plan as a whole on the problem of poorly informed policies, though there is some, as in the following, in the introductory section[22]:

> Policy changes should be approached cautiously based on experience and evidence so that the country does not lose sight of its long-term objectives.

What seems indicative of the NDP's under-emphasis on the use of data and evidence in planning is the fact that **the importance of Statistics South Africa** in providing necessary

[18] World Bank, 2018a: 91-94.
[19] However, it excludes any reference to what is perhaps the most compelling evidence of this, by Hanushek and Raymond (2005), who used the differentiated introduction of universal standardised testing across the states of the United States to gauge effects.
[20] Gustafsson, 2019.
[21] World Bank, 2018a: 20.
[22] National Planning Commission, 2012: 59.

information is mentioned just once, in relation to local government planning. Arguably, organisations such as Stats SA and the capacity of officials to use data needed a stronger emphasis in the plan.

Aligning actors is arguably the most complex of the WDR's three 'A' priorities. This is about getting key actors, including teacher unions and employers, to inform themselves using good information, to recognise the importance of better learning outcomes for alleviating poverty and tackling inequalities, and to 'buy in' to an approach for making progress. Buying in means stakeholders must each see something they gain from the process. For unions, this could mean salary scales that make their members happy, or greater respect for the teaching profession in society. However, it is not enough for there to be a common sense of purpose. Stakeholders need trust in the 'strong implementation capacity' of the education authorities[23].

Aligning actors is also about having a good sense of how the 'short route' and the 'long route' with respect to accountability complement each other. The first is about school accountability to parents, the second about school accountability to the authorities and, via elections, to the electorate. Importantly, though the WDR views accountability broadly and discusses the accountability of teachers and school principals, **the policies and information systems the WDR advocates are in the first instance about the accountability of the *school***, which is obviously to a large degree the accountability of the school principal. The NDP's strong emphasis on school principals as agents of change is in line with this. The WDR makes reference to school report cards to facilitate 'short route' accountability[24]. These are reports aimed at parents which indicate, firstly, whether a school's academic performance is improving and, secondly, how well the school fares relative to other socio-economically similar schools. The information in school report cards can also assist 'long route' accountability, by informing the authorities of which schools need particular forms of support.

While the NDP does not specifically look at **schools-based psycho-social support interventions**, such as group-based therapeutic interventions, such interventions have been taken forward in South Africa and elsewhere, in part through a UNICEF programme.

The NPC requested that the evidence on **schools-based psycho-social support interventions** be considered. One can understand such interventions as an indirect means of influencing learning, based on the recognition that successful learning is not just a matter of getting teaching right and mitigating the general effects of socio-economic disadvantage, such as the effects of poor nutrition. It also requires taking into account psycho-social difficulties children face. Such difficulties may call for individual or group-based therapeutic interventions. In the Department of Basic Education, such interventions are envisaged within the Care and Support for Teaching and Learning (CSTL) programme, a programme started in 2013 and encompassing not just South Africa, but also other African countries[25]. The programme has been strongly supported by UNICEF.

Though psycho-social support is widely considered to be under-prioritised within the education policy debates, probably because it addresses education problems indirectly and not directly, there is still little scientific evidence on the impact of particular approaches. One report that stands out is that of Chaia *et al* (2017) which, using PISA data, found remarkably high correlations between the learning outcomes of lower secondary students and what was referred to as the 'mindset' of individual students. A rare impact evaluation of an actual intervention is that described in Torrente *et al* (2015). That intervention, run in the Democratic Republic of the Congo, involved **sensitising teachers to more caring and nurturing ways of conducting their lower primary classes**. The intervention had a positive

[23] World Bank, 2018a: 24.
[24] World Bank, 2018a: 200.
[25] Southern African Development Community, 2015.

impact on how learners perceived their environment. The impact on learning outcomes was however not evaluated.

While the international evidence informs the NDPs approach to schooling to a high degree, this link is relatively weak when it comes to post-school education. The NDP could have been clearer on how a **diversification of funding sources** could facilitate the large expansions in the post-school sector envisaged in the plan, and on exactly how **quality assurance systems** could be strengthened to reduce inequalities across institutions.

For post-school education, there is no global compendium of evidence and policy advice of the breadth and depth found for school education. However, a few influential reports have guided the global and national discourse. The World Bank's 2000 *Peril and promise* report put forward broad policy recommendations for higher education, and was in some ways an admission that **the World Bank had previously paid too little attention to higher education in developing countries**[26]. A 2016 issue of the *International Journal of African Higher Education* was devoted to understanding developments in the wake of the *Peril and promise* report[27]. A 2009 report by UNESCO on the role of private universities stands out[28]. A 2019 report by UNESCO-UNEVOC[29], UNESCO's TVET research and action institute, serves as an indication of the policy advice emerging from this organisation.

Three recurring recommendations from these analyses dealing with post-school education across the world stand out: **diversify funding sources to deal with the need for expansion; improve institutional governance; and establish national quality assurance systems**.

What seems clear is that countries such as India and China, which have seen exceptionally rapid growth in their post-school sectors, have achieved this in part because non-state actors have been encouraged to invest and pay for ongoing costs. In practice, this means facilitating a stronger presence of foreign universities (very clear in China) and a growth in private universities (very clear in India). This can be coupled with public bursaries for needy students enrolled in private universities. This is what **diversifying funding sources** has been about. Such a process is often opposed, to some extent justifiably, based on concerns around equity, the state's power to direct national development and the capacity of regulatory authorities to quality assure private universities.

South Africa is cited as an example of a country which has not been open to encouraging private participation[30]. The matter is not an easy one, but there does seem to be **a trade-off between speed of expansion and the publicness of the sector**. Countries that have seen fast expansion have had to relinquish some state power. Ideally, such countries protect national development priorities through regulation, which balances the state's interests and the needs of the non-state actors. In fact, in an effective mix of state and non-state actors, the line between private and public institutions should become somewhat blurry. It is conceivable that private universities may be highly focussed on the state's priorities because many students receive bursaries targeting education in areas of critical national importance while on the other hand, public universities may receive much of their income from the private sector and cater for training needs specific to private industries.

Improving institutional governance often involves creating incentives in long-standing public institutions for people to be more dynamic and more focussed on the quality of the education offered. It also involves quality assuring and regulating new private institutions

[26] World Bank, 2000;
[27] See in particular: Bloom *et al*; Salmi; Oanda and Sall. All from 2016.
[28] Bjarnarson *et al*, 2009.
[29] De Otero, 2019.
[30] Bjarnarson *et al*, 2009: 8.

with a view to avoiding opportunistic and unethical profit-making, where students from more disadvantaged segments of society are often the victims. In section 3.2, the use of information on institutional quality in Chile and Brazil to expose under-performing institutions is discussed.

Two governance challenges stand out for TVET colleges. One is to broaden the notion of innovation beyond simply offering new and more relevant training courses, to also include management and governance innovation, in part to deal with poor quality training. The other challenge is to broaden the notion of capacity building. This is often equated with the in-service training of lecturers and upgrading their qualifications. While this is important, how new lecturers are recruited and the performance management of lecturers often receive insufficient attention.

South Africa is acknowledged as having been a pioneer with respect to **national quality assurance systems** within Africa[31]. Just as there is a trade-off between the speed of expansion and the publicness of the higher education system, there is also a trade-off between the speed of expansion and quality. Both India and China have seen quality decline, in the form of a proliferation of new institutions offering education of a quality below what was considered a norm in the past. This does not necessarily mean that the lesser quality education is a wasteful investment, especially in countries such as India and China, which have experienced very rapid economic growth. The economy has been able to absorb the graduates concerned. However, in a country such as Egypt, poor quality higher education has produced serious levels of graduate unemployment, even while employers were struggling to fill skills gaps[32].

To some extent, declines in quality are inevitable in a context of rapid growth. The challenge is to limit this decline. It has been argued that both India and China could have managed this better, not just through better national quality assurance systems, but also through more 'systematic thinking' in their planning processes[33]. One quality assurance area that receives special attention in the literature is social sciences and the humanities. Perhaps the very nature of this area makes quality assurance difficult. Poor quality education in areas such as engineering and the natural sciences is perhaps easier to identify. It has been argued that **much of the quality problem in higher education in Africa resides in the humanities**[34]. The humanities, or the 'broadly educated generalists' emphasised in *Peril and promise*[35], are important for national development, yet quality assurance here is often weak.

It could be argued that **the NDP is more in line with the international evidence when it comes to pre-schooling and schooling than when it comes to post-school education**. While the NDP pays some attention to improving the institutional governance of colleges and universities, it pays almost no attention to diversifying sources of funding to facilitate the large expansion envisaged in the post-school sector. While the NDP acknowledges the risk of a decline in quality, it does not explore whether existing quality assurance systems are up to the task of dealing with a much larger and diverse post-school sector.

2.3 A critical high-level summary of the NDP's education approach

If one were to summarise Chapter 9 of the NDP in a few paragraphs, in the light of what is discussed above, one could say the following:

[31] Salmi, 2016.
[32] Oanda and Sall, 2016: 65.
[33] Bloom *et al*, 2016: 36.
[34] Oanda and Sall, 2016.
[35] World Bank, 2000: 14.

The NDP's chapter on education, titled 'Improving education, training and innovation', envisages both quantitative expansion and qualitative improvements to the education and training system. Although the chapter does not explicitly discuss the imbalance in South Africa's participation rates between school and post-school education, the emphasis on expansion mainly at the post-school level is in line with addressing this large imbalance and also addressing the country's exceptional skills shortfall. The NDP envisaged an increase in the number of university and college students from a baseline of around 1.3 million to 2.8 million, with most of the expansion occurring in colleges. The envisaged increases in graduations were slightly steeper, reflecting the plan's aim to improve efficiency. The chapter also prioritises the expansion of pre-school participation, which would be in line with current understandings of educational improvement. However, the expansion required here is probably less than that suggested by the NDP, given that pre-school participation was already fairly high when the plan was released in 2012[36]. Universal completion of at least twelve years of education was envisaged, but no target year was set, which seems correct given that trends across the world suggest such a target can only be realised very gradually[37].

Turning to qualitative improvements, the critical importance for national development over the longer term of improving learning outcomes early on in the schooling process is fairly well captured in the chapter. However, the exceptionality of South Africa's school quality problem could have been explained better, and setting targets in terms of fairly arbitrarily determined pass marks is problematic. The approach of combining specific support and accountability interventions to improve the quality of schooling is consistent with best practice across the world. The plan acknowledges great inequality of quality across post-school institutions. Much of the emphasis on improving the quality of these institutions focusses on strengthening governance. This makes sense. However, the plan probably pays too little attention to risks associated with simultaneously doubling the size of the post-school sector while at the same time raising quality. Other countries have tried to achieve this through having the private sector play a much larger role. While the NDP acknowledges that the private sector is an important provider at the post-school level, state initiatives to boost private provision receive little attention.

3 What progress has been achieved in terms of the implementation of the NDP?

3.1 The implications of post-2012 developments for education planning

There are political developments and research findings emerging after the 2012 publication of the NDP which influence the interpretation of the NDP for government and for the nation. This is the topic of the current section.

Clear evidence, emerging from 2012, of **qualitative improvements in the schooling system**, occurring at a relatively rapid rate, have profound implications for the education policy debates. Despite the improvements, South Africa's educational quality remains low, implying that the drivers of past improvement need to be understood as far as possible, so that these factors can continue to contribute to further improvement.

From the end of 2012, **evidence began emerging that the quality of South African schooling as measured by international testing organisations was improving**, and at a rate comparable to the strongest improvers around the world. This does not mean that the schooling system performs well. However, if it is improving off a low base, and at a speed which is close to a 'speed limit' for schooling systems, based on historical trends around the world, then it is difficult to argue that reasonable expectations have not been met. Of course,

[36] See section 3.3.
[37] See section 3.3.

there is no guarantee that improvements seen in recent years will continue in future. Sustaining the upward trend should therefore be a key priority informing strategy. Details regarding the improvements are discussed in section 3.3 below.

The improvements detected by the international tests constituted not just progress against the goals of the NDP, but an opportunity to think differently about the education system. Progress in terms of learning outcomes is no longer a remote possibility, as had long been considered to be the case, but a reality. The improvements detected in the international programmes raised **the question of *what* was behind the improvements**, as the answer to this question had to inform the way forward. This question has barely been explored in South African policymaking circles, perhaps because the significance of the improvement has not been fully understood.

The Department of Basic Education has attributed the improvements to three things: **better access to books** among learners; a **strong focus on assessing learners**, specifically through the Annual National Assessments (ANA) programme; and **clearer pedagogical instructions to teachers** in the form of the new Curriculum and Assessment Policy Statement (CAPS) documentation (the roll-out of this occurred during the years 2012 to 2014)[38]. Insofar as this explanation of causes is correct, it points to the need to preserve the drivers of positive change at all costs. A key question is of course whether the discontinuation of ANA after 2014 has removed a key driver of change in the schooling system. ANA is discussed below.

The **Annual National Assessments (ANA)**, a programme assumed by the NDP to be an important tool to gauge change and enhance school accountability, was discontinued in 2015. It may not be fully replaced for some time, not just due to employer-union differences, but also due to the technical difficulties associated with building a censal (universal) testing system able to produce reliable measures of progress at the level of every school.

The **Annual National Assessments (ANA) programme**, referred to extensively in the NDP as a tool for promoting accountability and monitoring progress at the level of every school, came to a halt in 2015, due to teacher union opposition. This removed a vital element of the NDP's envisaged improvement strategy for schools. Specifically, without comparable measures of the academic performance of each school, it becomes difficult or impossible to share school-level performance information with parents, or to reward principals who improve learning outcomes. The problem is particularly serious in primary schools, given the absence of a national examination at that level. The DBE's approach since 2015 has been to work closely with unions in finding alternatives. One successful outcome of this work has been general agreement over the re-introduction of the sample-based Systemic Evaluation programme, designed to produce national and provincial trend data for grades 3, 6 and 9. However, this still leaves a gap with respect to data on every school. This is not just a problem of the politics between unions and government. There are also capacity constraints in government when it comes to designing and rolling out a censal (or universal) assessment system, covering all schools, free from the technical problems and policy uncertainties that contributed to ANA's downfall[39]. What is probably optimal for the foreseeable future is less rigorous monitoring than would be permitted by a fully-fledged censal assessment system, linked to fairly informal accountability. Specific options in this regard are discussed in section 4.

The Department of Basic Education's **Early Grade Reading Study (EGRA)** has experimented with various methods for improving the capacity of lower primary teachers to teach reading better. The findings were encouraging, and have led to high-level commitments

[38] Department of Basic Education, 2015: 12-13.
[39] Department of Basic Education, 2016a: 12; Gustafsson, 2018.

to roll out teacher training which has proven to work well, on a large scale. This knowledge was not available when the NDP was published.

Important South African findings on **how to improve early grade reading** emerged from 2017, largely as a result of the DBE's ongoing Early Grade Reading Study (EGRA)[40]. This study was started, in 2015, as part of the broader worldwide movement towards a stronger emphasis on getting early grade reading right, as a prerequisite to all subsequent education. This movement is perhaps best captured in the UN Sustainable Development Goals dealing with the quality of basic education. Though early grade reading was already a prominent policy issue when the NDP was being produced, this priority is only captured indirectly in the NDP, as part of the NDP's broader focus on the quality of schooling. In hindsight, the NDP should probably have highlighted early grade reading explicitly. The two 2019 State of the Nation Addresses (SONA) of President Ramaphosa did highlight early grade reading. The February SONA refers to the need for widespread access to a 'dedicated package of reading resources, expert reading coaches and lesson plans', while the June SONA mentioned that in ten years 'every 10 year old will be able to read for meaning'. These commitments draw largely from the findings of EGRS.

Specifically, the best combination of EGRS interventions brought about gains in reading proficiency, relative to a control group, of 0.17 standard deviations a year, a very satisfactory result considering that countrywide improvements tend not to exceed 0.06 standard deviations a year[41]. (It is common to find project-based improvements to be larger than countrywide improvements, given the difficulty of taking interventions to scale.) Crucially, EGRS set out to implement the instructions of the existing curriculum in better ways. It was not about changing the curriculum. **EGRS has thus confirmed that substantial gains are possible within the existing policy framework.** The largest gains in the EGRS were found in the larger classes among participating schools, specifically classes with 38 to 45 learners. All this points to important opportunities to ensure that learning outcomes, specifically in relation to early grade reading, continue to improve at an acceptable rate (as explained below, the PIRLS trend points to a considerable improvement in early grade reading since 2011). There are some caveats, however. The EGRS interventions require groupwork, which becomes difficult to organise in classrooms with over 45 learners. Published statistics on excessive class sizes are not easily available. Perhaps the best indication of recent patterns is that the 2015 TIMSS Grade 5 data point to 28% of learners being in classes with more than 45 learners, while the corresponding figure emerging from the 2016 PIRLS Grade 4 data is 41%[42]. These are very worrying statistics. The patterns are likely to be similar in grades 1 to 3[43]. A part of the solution must thus lie in reducing extreme overcrowding in classes during the initial school grades.

The significance of the EGRS findings become clear if one takes into consideration that worldwide **it has proven to be extremely difficult to shift teacher practices through in-service training[44]**. Much policy advice has thus emphasised the importance of bringing about better *pre*-service training, so that younger teachers with better teaching skills can gradually replace older teachers. Obviously, improving pre-service training is important, and there is evidence that this has in fact occurred in South Africa[45]. But EGRS points to the possibility of complementing this with particular forms of in-service training which *do* have an impact on the practices of the existing teacher workforce.

[40] Department of Basic Education, 2017a.
[41] 0.17 is half of the 0.33 seen in Department of Basic Education (2017: 14).
[42] New analysis of the TIMSS and PIRLS microdata.
[43] See also Spaull, 2016.
[44] UNESCO, 2014: 27.
[45] Armstrong, 2014.

A recent high-level commitment to introducing a **Grade 9 national examination and certificate** implies a major structural change in the education system, one which was not envisaged by the NDP. If the purpose of the new examination is made very clear, and if it well implemented, it could contribute to the broader goals of the NDP.

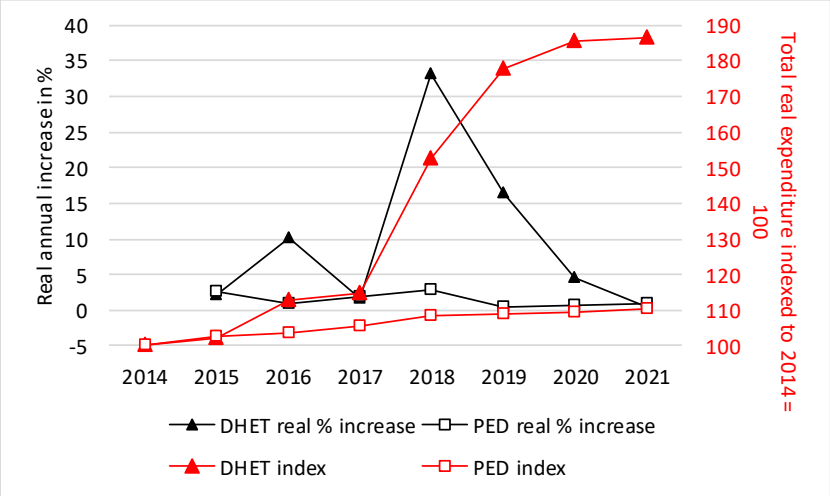
In 2019, the Minister of Basic Education, Angie Motshekga, announced in her budget speech to Parliament that **a Grade 9 national examination and certificate, the General Education Certificate** (GEC), would be introduced, with piloting beginning in 2020. This clearly represents a major structural reform in the schooling system, and one which was not envisaged in the NDP. It was, however, envisaged in Education White Paper 1 of 1995 and recommended by a Ministerial Task Team in 2014[46]. The introduction of the GEC would be in line with many of the priorities of the NDP. For example, insofar as it encourages a focus on standards and quality at the lower secondary level, it could improve learners' chances of succeeding in Grade 12. However, prioritising the GEC could also further reduce the capacity of the system to bring about the necessary universal assessments at the primary level. To date, no clear policy statement on what the purpose of the Grade 9 certificate is has been released by the DBE. Such a statement is clearly necessary, especially given the fact that many of the problems arising out of ANA were due to the lack of a clear policy on the purpose of the programme. A clear policy statement might furthermore allay current concerns that the GEC represents a focus away from obtaining the Grade 12 NSC. However, policy and good intentions on their own are not enough. The Grade 9 certificate could have serious unintended consequences. For example, if it is seen to facilitate movement from a sector where there are no bursaries for individual students – the schooling system – to one where such things exist – the college sector –, students' financial considerations could become a major driving force in ways that were not anticipated. To manage such risks, effective monitoring of changes in the enrolment flows, and probably opinion surveys of students and other stakeholders, will be necessary. What should be avoided is a situation where unintended consequences are only detected several years later.

University student protests, starting in 2015, led to **larger budgets for the university sector**. However, the expectation is that much of this increase should go to more funding per student. The state will need to monitor and manage unit costs very carefully so that planned enrolment increases are not compromised. A World Bank report provides specific recommendations on how to strengthen the role of private institutions in the interests of reaching enrolment targets.

The **#FeesMustFall** protests across universities in South Africa, starting in 2015, led to a major budget reprioritisation in favour of tertiary education. The increases experienced by post-school education are illustrated in Figure 1 below. In real terms, DHET's spending is set to increase by 86% between 2014 and 2021. By far most of this is accounted for by increases in spending on universities. The relatively flat trend for provincial spending on basic education is shown for comparison purposes. To provide a sense of the magnitude of the spending increases, the increase in university enrolments between the actual 2013 figure of around 980,000[47], and the NDP's 2030 target of 1.6 million (see section 2.1) is 63%. Had per student funding remained constant, there would have been enough money to fund the expansion to 1.6 million. However, the student protests focussed mainly on increases in per student funding, in particular for students from less advantaged backgrounds. There is clearly a risk that per student increases will substantially compromise commitments towards enrolling more students. Per student costs will have to be monitored very carefully.

[46] Department of Basic Education, 2014.
[47] Department of Higher Education and Training, 2015.

Figure 1: Expenditure trends for basic and post-school education



Source: For DHET, Estimates of National Expenditure *(ENE) reports with the most recent figures. For provincial education departments (PEDs), the EPRE spreadsheets off the National Treasury website. Inflation figures are CPI values from the* Budget Review.
Note: Red curves should be read against the right-hand vertical axis. Values up to 2017 are final audited figures. 2014 means financial year 2014/15, and so on.

Do the trends in per student funding at universities represent an undesirable unbalancing of spending on schools versus spending on post-school education? This is a complex question, but historical UNESCO figures can help to shed some light on the matter. These figures point to South Africa being roughly on a par, ten years ago, with other middle income countries when it comes to per student spending at all levels, from primary to tertiary[48]. An increase in per student funding at the tertiary level of even 20%, a conservative figure if one considers the above graph, would in fact produce a certain unbalancing, in the sense that relative to other middle income countries, South Africa would have a more costly tertiary sector in per student terms. Concerns around this seem to underlie the message of a recent World Bank report: **South Africa needs to concentrate as far as possible on ensuring that more funding on higher education translates into *higher participation***. By middle income country standards, South Africa's participation rates at the post-school level are very low. The World Bank report, focussing on South Africa and titled *Tertiary education enrollments must rise*, uses an international comparison to imply that university enrolments are less than one half of what they should be[49].

The World Bank report discusses how South Africa might realise the diversification of funding discussed in section 2.2 above, and hence deal better with tensions between, on the one hand, the need to increase participation in post-school education and, on the other hand, the realities of limited public funding. There are several models which could be adapted to the South African context, including public-private partnerships where the state assumes responsibility only for the initial start-up costs of the new private university. Crucially, **the existing regulatory environment for private universities should be made more efficient**. Certain approval processes can take as long as 18 months, because of inefficiencies and weak capacity in the public bodies responsible for the approval[50].

While the more politically powerful university sector has not seen any explicit attempt to slow down enrolment growth, though increased spending per student might have this effect, **TVET**

[48] Gustafsson, 2014: 236.
[49] World Bank, 2019b: 32.
[50] World Bank, 2019b: 47.

enrolments have been deliberately frozen, due to budget constraints. This is despite the fact that the NDP envisaged larger enrolment increases in the TVET sector than the university sector.

While plans project some growth in university enrolments, **enrolments (specifically headcounts) in the 50 public TVET colleges have been capped** at 710,535, due to budget constraints[51]. This cap is expected to continue for two to three years beyond 2019. The level of enrolment at public TVET colleges has remained essentially static since 2014. Before 2014, there were substantial increases. In 2010, the headcount was just 360,000[52]. There has thus been a remarkable doubling of the number of students in just a few years, followed by an engineered pause in growth. The NDP seems to envisage 1.25 million students in public colleges by 2030. This could conceivably still happen if the fiscal situation improves and colleges see another rapid doubling of enrolments, during some period between now and 2030. It is worth noting that per student funding in TVET colleges is high, and higher than per learner funding in schools, even if, in terms of the National Qualifications Framework, much of the college training is at the level of grades 10 to 12 in schools. Direct funding per full-time equivalent college student in 2015 was reportedly around R20,784 (this excludes loan funding through NSFAS[53]), against per learner spending of R15,231 in secondary schools in 2016[54]. College costs thus exceed school costs by around 43% after one has taken into account inflation.

The concept of a Fourth Industrial Revolution has become an important one in government planning since 2016. In the schooling sector, this emphasis strengthens the justification for **more vocational and technical education at the secondary level**, something which the DBE is currently promoting as part of the new Three Stream Model. Aspects of this model are in fact envisaged in the NDP, though not in the NDP's education chapter.

Klaus Schwab, head of the World Economic Forum, popularised the term **'Fourth Industrial Revolution'**, and the concept behind it, with the publication of his 2016 book. Since then, the concept has become widely embraced by policymakers in certain countries, including South Africa (as well as China, Malaysia and Kenya, though not India nor the United States, according to some basic googling). In 2018, President Ramaphosa established the Fourth Industrial Revolution Commission to help prepare the country for deep structural changes expected in the labour market due to technological change. The concept is now widely used in South African education planning circles. There is, as one might expect, much disagreement around how exactly technological change will impact on the demand for skills, with the World Economic Forum and the World Bank adopting rather different views[55].

Probably the most ambitious South African policy proposal developed at least in part to respond to the Fourth Industrial Revolution is the DBE's **Three Stream Model**. This model proposes creating three distinct streams in grades 7 (or 8) to 12: academic; technical vocational; and technical occupational. Presentations on the proposed model have been made[56], but there is as yet no formal and national policy in the public domain. Equal Education, the education activist group, released a critique of the model in 2018, arguing that there was too little information on what the model entailed and what its assumptions were, that it could exacerbate inequalities, and take attention away from more fundamental issues, such as improving the quality of schooling. Equal Education has not been alone in arguing

[51] Page 15 of DHET's 2019/20 Annual Performance Plan.
[52] Department of Higher Education and Training, 2018: 33.
[53] National Student Financial Aid Scheme.
[54] Department of Higher Education and Training, 2017: 82; Department of Basic Education, 2018b: 18.
[55] World Economic Forum, 2016; World Bank, 2019.
[56] Slide presentation titled *Progress and plans on the Three Stream Model, Fourth Industrial Revolution, entrepreneurship in the basic education sector*, accessed at https://pmg.org.za.

these points. What is clear is that the Three Stream Model represents a very ambitious reform, perhaps the most ambitious post-1994 reform apart from the undoing of the unequal apartheid funding models in the late 1990s. It is likely to elicit both strong support and much criticism. Though nothing like it is mentioned in the education chapter of the NDP (Chapter 9), something like it is envisaged in Chapter 3, which deals with the economy and unemployment (see in particular the part in italics)[57]:

> Provide skills development for students currently in school with a focus on grooming an entrepreneurial attitude. This should include reviewing the curriculum with a view to encouraging entrepreneurial thinking and creating the skills necessary for start-ups. *The review should consider focusing education into technical and academic streams after grade 8, and establishing vocational and technical training for students in grades 9 and 11*.

Moreover, the Three Stream Model is seen as a way of **improving the attainment of twelve years of education**[58], which is also a long-term NDP priority.

3.2 How education departments have formally responded to the NDP

An analysis of the annual plans of four education departments, two national and two provincial, is instructive. The NPC should be concerned not just with *what* is in the plans of these departments, but *how* specific priorities are covered. A lack of depth around issues such as promoting accountability, and insufficient details on policy and systems innovation, suggests **compliance with the NDP is often not substantial enough to effect real change**.

This section evaluates **how responsive key education administrations have been to the priorities of the NDP**. The evaluation focusses on the 2019/20 Annual Performance Plans (APPs) of four departments, two national and two provincial: Department of Basic Education (DBE); Department of Higher Education and Training (DHET); KwaZulu-Natal Department of Education (KZNDOE); and Western Cape Education Department (WCED). These plans guide the work of the four departments and are used for accountability purposes by various oversight bodies, including the Office of the Auditor-General and national and provincial legislatures.

The exercise consisted of comparing, on the one hand, the NDP's priorities (section 2 above) and priorities which have emerged as a result of post-2012 developments (section 3.1) and, on the other hand, the plans of departments. The table on the following page summarises what the comparison suggests should feature more strongly in future issues of the annual education plans. Four categories of action were used: **funding systems and support; accountability; expansion; and a focus on outcomes**.

[57] National Planning Commission, 2012: 143.
[58] Presidency, 2019: 88.

	DBE	KZNDOE and WCED	DHET
References to NDP in 2019/20 plan[59]	20 times.	KZNDOE 9 times, WCED 22 times.	16 times.
THINGS ONE MAY WANT TO SEE IN FUTURE ANNUAL PERFORMANCE PLANS			
Funding systems and support	More details on better teaching methods for early grade reading.	An integrated approach to improving the conditions and capacity in the classroom for better early grade reading.	Details on what system changes mean for unit costs and the pro-poorness of spending.
Accountability	A commitment to better use of Grade 12 examinations data for school-level accountability systems.		A more systematic approach to ensuring that the post-school sector responds to needs in the economy and society.
Expansion	More details on the qualitative changes envisaged for pre-schools.	A better engagement with the pre-school statistics in the province and what this means for early childhood development, especially for the poor.	An account of how the outputs of the post-school sector correspond to changes in the skills composition of the labour force.
Focus on outcomes	More evidence of planning in relation to Grade 12 outcomes most needed by the economy.	A commitment to using school-based assessment (SBA) data for school-district and school-parent lines of accountability.	Approaches to tackling inequalities in the quality of education across institutions.

[59] 'NDP' or 'National Development Plan'.

While the comparison revealed that there are gaps with regard to *what* the education departments have in their plans, it also revealed general weaknesses with respect to *how* the departments plan. Apart from insisting that certain things be prioritised, the NPC is well placed to insist on good planning practices in general. The NDP has pointed to what some of the planning problems are, a key one being an insufficient use of evidence in the planning process. A 2017 study commissioned by National Treasury[60] found that silo effects within education departments tend to be replicated in departmental planning documents, the result being that **interlinkages and contributions of budgets and activities to overall outcomes are often not clear**. Moreover, it found that long-range trends are not sufficiently reported on and interpreted.

It is worth noting that at a general level, **DHET's APP is better at providing a holistic and evidence-based sense of the way forward** than the APPs of DBE and the two provincial departments. Specifically, DHET's 'situational analysis' offers a relatively clear analysis of recent developments and what this means for the way forward. Though the DBE's plan is rich in data, what the statistics mean for the future is not that clear, and institutional problems are not dealt with very clearly.

The discussion now turns to what is in the above table.

Plans for basic education would be more convincing and impactful if they paid more attention to implementation challenges in areas such as teacher in-service training, the reduction of over-sized classes, the development of new indicators to gauge progress at the Grade 12 level, and the development of e-Government portals to disseminate key information. There needs to be **an indication in the plans that lessons from the past have been internalised**.

More details on better teaching methods for early grade reading. While the DBE's plan deals extensively with the challenge of early grade reading – a matter previous sections have argued can be considered a pillar of the NDP's vision –, what would be good is at least a basic presentation of why past efforts in this area have failed. In other words, what are the mistakes which should not be repeated? Early grade reading has been prioritised in the education sector previously[61]. There are commitments in the DBE's plan which an informed reader would find impossibly over-ambitious, as in the following (p. 12):

> Foundation Phase and Intermediate Phase subject advisors, teachers, and School Management Team (SMT) members will be trained to teach reading in EFAL and African Languages by the end of 2020

In another part of the plan there is a lower commitment to training 4,200 Foundation Phase teachers (p. 56). This would still be ambitious, yet is more realistic than training, say, all the approximately 100,000 teachers working in grades 1 to 3 classrooms. But if just 4,200 are being trained in a context where the target may be a re-training of close to 100,000 teachers, how does one roll this kind of training out over the longer term, and who does one target first? Not presenting answers to such questions, and the contradictions within the plan, compromise the credibility of the plan.

The lack of clarity around reading norms in the DBE plan are also concerning. Such norms, for instance in the form of words per minute specific to the child's age and the language used, have helped to stimulate the right action and accountability to parents in other schooling systems[62]. The question is how such norms would be developed in South Africa, how they would be tested, and so on. On p. 35 of the DBE's plan, it seems reading norms would be

[60] National Treasury, 2017a: 33.
[61] Van der Berg *et al*, 2016: 51.
[62] Crouch, 2011.

developed up to Grade 9. This would be unusual, and does not seem necessary. Such norms are typically used just in the earliest grades. There are many references to the monitoring of activities relating to reading, for instance the use of the EGRA[63] toolkits in schools. However, there is no indication of the purpose of this monitoring, or the publication of monitoring reports. The plan should be clear on how monitoring work adds value to planning and implementation.

An integrated approach to improving the conditions and capacity in the classroom for better early grade reading. The provincial plans share many of the weaknesses of the DBE's plan when it comes to early grade reading. In addition, one might expect a province such as KwaZulu-Natal, where in 2013 15% of grades 1 to 3 learners sat in classes with more than 50 learners[64] to at least acknowledge this as a problem, and to indicate what the solutions could be. Western Cape refers to a new provincial strategy for early grade reading being developed, but does not refer back to earlier work in this regard, and lessons from the past. Neither of the two provincial plans, released in early 2019, make mention of the Early Grade Reading Study, the DBE research programme which came up with important evidence on interventions that work, and whose reports were released in 2017.

A commitment to better use of Grade 12 examinations data for school-level accountability systems. While the term 'accountability' is used fairly frequently in the plans of DBE, KZNDOE and WCED, how this translates into policy and improvement is not clear. The DBE seems to underline the performance management system for educators, the IQMS[65], as an accountability tool. It is indeed an accountability tool, but educator-level accountability systems receive less emphasis than school-level accountability in the NDP, for good reasons (see section 2.2 above). How to enhance school-level accountability, including the accountability of schools to parents and communities, is not well covered in the three plans. This means opportunities for strengthening the 'short route' in accountability systems seem to be missed. At the national level, a logical first step would be to commit to developing school-level indicators of performance using the Grade 12 examinations data. Such indicators would need to move beyond the traditional pass rate, which is clearly problematic as both an indicator of relative performance at one point in time, and progress over time. Work on school-level indicators, and perhaps also school report cards, at the secondary level could inform subsequent work at the primary level, assuming that better performance data were generated at the primary level[66]. Having instruments of this nature would help to give effect to commitments such as empowering school governing bodies. In fact, according to a 2017 response by the DBE to a parliamentary question, the DBE has initiated work on better Grade 12 performance indicators[67]. However, this work does not feature in the 2019/20 APP.

The Western Cape's 'e-Portal Project' (p. 14 of the WCED plan) serves as an indication of work that should be occurring to a greater extent, but also weaknesses in current e-Government projects. The portal, at wcedeportal.co.za, is meant to provide parents with information they need. A visit to the portal[68] indicates it is still under-developed and not able to serve a clear purpose yet. But the portal could be the beginning of a system of providing parents with information on how well schools perform, and how to hold the local school accountable. The fact that the portal is presented as if it were an already fully-functioning facility is concerning. It seems indicative of a wider problem whereby web-based facilities aimed at stakeholders such as parents are incomplete or poorly designed and not optimised.

[63] Early Grade Reading Assessment.
[64] Spaull, 2016: 3.
[65] Integrated Quality Management System.
[66] Proposals for Grade 12 school report cards can be found in National Treasury (2017b).
[67] Question NW983 of 2017, response available at pmg.org.za.
[68] In January 2020.

Insisting on meaningful e-Government facilities is something the NPC could do relatively easily, given that these facilities are by their nature easy to access and examine.

More details on the qualitative changes envisaged for pre-schools. As new responsibilities in the pre-school sector are assumed, one can expect the DBE's plans to display a deeper and holistic understanding of the qualitative aspects of improving pre-schooling. The word 'stunting' does not appear in the DBE plan when arguably it should, given the NDP's concerns about this for early childhood development in the country.

A better engagement with the pre-school statistics in the provinces and what this means for early childhood development, especially for the poor. One can expect the provincial plans to provide evidence of a good grasp of the pre-schooling sub-sector, currently in the process of being 'migrated' to the provincial education departments. How pro-poor is the current coverage, in simple participation terms, but also in terms of the quality of services? What are the existing unit costs in pre-schools, and how is this covered by public and private funding? How progressive is the current public funding system? Household data would be important for answering some of these questions.

More evidence of planning in relation to Grade 12 outcomes most needed by the economy. While the DBE plan refers to the importance of increasing the number of Matrics qualifying for Bachelors studies at a university, what is missing is an indication that the DBE's planning goes deeper than this and focusses on outputs expected by universities and the labour market. For instance, there are specific expectations relating to learners reaching mark thresholds such as 50%, 60% and 70% in mathematics, thresholds used as entry requirements at universities or for specific courses of study.

A commitment to using school-based assessment (SBA) data for school-district and school-parent lines of accountability. Both provinces refer to ensuring that schools implement SBA, in line with policy. What seems missing is a focus on systems that would facilitate the use of SBA data, for instance in accounting to parents and district offices. KwaZulu-Natal participates in an important countrywide partnership project with the Dell Foundation, known as Data Driven Districts, or DDD, which has produced information dashboards for use by school principals and district officials[69]. These dashboards include displays drawing from SBA data. KwaZulu-Natal's plan should have discussed the potential of these dashboards for enhancing accountability.

DHET's plans, while relatively good at using data from education institutions, could be strengthened by incorporating analysis of household data, specifically educational attainment in households and labour market dynamics. Quality differentials across institutions, covered well by DBE for the schooling sector, is largely absent in DHET's plan. **Unit cost trends need more careful analysis**, especially given current changes to funding rules.

Details on what system changes mean for unit costs and the pro-poorness of spending. Turning to the post-school sector, while the DHET plan deals with funding from the perspective of the student – who is likely to get what – what seems missing is system-level unit cost figures, and what these mean for the sustainability of the new bursary and loan systems being implemented. The progressivity or pro-poorness of participation and funding could be made clearer. For this, household data can be considered indispensable. Yet the DHET plan suggests household data is barely used for planning by the department. The DBE plan, on the other hand, provides evidence of extensive use of household data.

A more systematic approach to ensuring that the post-school sector responds to needs in the economy and society. While the DHET acknowledges to some extent the importance of

[69] New Leaders Foundation, 2018.

responding to the skills needs of the economy – for instance on p. 32 in relation to the colleges – what seems missing is evidence that DHET is working systematically with, for instance, employer organisations to establish needs, both in terms of qualifications demanded, but also in terms of the depth and quality of post-school education. The fact that DHET's Labour Market Intelligence Partnership (LMIP) research project[70] is not mentioned in the plan suggests that the links between this research work and planning are not strong.

An account of how the outputs of the post-school sector correspond to changes in the skills composition of the labour force. Checking the correspondence between administrative and household data (as is done for the current report) and, by implication, the correspondence between flows from institutions and stocks of skills in the labour market, can be considered a necessary part of DHET's planning.

Approaches to tackling inequalities in the quality of education across institutions. While the NDP is concerned about inequalities in the quality of education across post-school institutions, DHET's plan pays little attention to this. (The DBE's plan, however, pays considerable attention to similar inequalities across schools.) Monitoring and rectifying these inequalities at the post-school level is not easy. However, there are options from other countries worth exploring, including Chile's very public dissemination of the employment rates of the graduates from different institutions, in comparable fields of study[71]. Brazil has gone further by introducing what are essentially standardised tests for university graduates – in addition to university-specific examinations, each student writes a short national test, which is field-specific[72]. A less ambitious approach would be to conduct tracer studies which track what happens to students after they leave specific institutions.

3.3 Perceived and actual progress towards NDP targets

As will be seen below, many of the gains in terms of education have been relatively invisible. They have not been reported widely in the media, and have often been difficult to find reflected even in government reports. Moreover, published statistics have at times been unreliable, confirming the need to strengthen capacity in areas such as monitoring and statistics.

Five key areas where one might expect progress with respect to the outputs of the education system are discussed: pre-school participation; quality of schooling; access to non-academic subjects in schools; completion of twelve years of education; and graduations from post-school institutions.

3.3.1 Pre-school participation

Participation in Grade R is currently at around 94% and for the year below Grade R around 75%. The NDP's target of taking both these statistics to 100% by 2030 is clearly feasible as well as important for the development of children. What is concerning, however, is that despite much growth in participation before the release of the NDP, *after* 2012, progress has been slow. Moreover, the quality of pre-schooling is poorly understood.

A key priority of the NDP is to universalise a year of education below Grade R, and for all pre-schooling to become the responsibility of the basic education sector. Steps have been taken with regard to the latter. Household data are the best source currently for gauging pre-school participation. These data suggest that around 75% of children of an age one year

[70] Reddy, 2018.
[71] González-Velosa, 2015: 3.
[72] Rezende, 2010.

before Grade R are already participating in some form of institution[73]. The fact that participation is already so high at this level of education means, above all, that much of the focus in the coming years can fall on improving the quality of pre-schooling, as opposed to increasing access.

With regard to Grade R, **the percentage of Grade 1 learners who received Grade R** has risen from around 92% to 94% during the period 2012 to 2016[74]. At this level, universal coverage is thus close to being achieved.

The levels of participation described above cannot be said to have been the result of the NDP's emphasis on pre-schooling, as nearly all of the expansion occurred *before* the release of the NDP in 2012. Specifically, analysis of multiple household datasets suggests that there was a continuous improvement in pre-school participation, from 2003, for all ages age two and above, up to around 2013. For example, at age four participation rose from around 20% to around 75% during this 2003 to 2013 period. Thereafter, participation levels remained static, and perhaps even declined slightly, depending on how one views the household data. Importantly, **no-one appears to have researched what factors lay behind the 2003 to 2013 expansion**. It is likely to have been due to a mix of improvements in income levels, changing roles for women in households, and funding of community-based centres through the Department of Social Development system.

How does South Africa's pre-school participation level compare internationally? It is not easy to answer this question as there are several comparability problems, largely related to the fact that across the world much pre-schooling occurs in institutions not funded by the state, and hence also poorly monitored by the state. A relatively reliable source is UNICEF's *State of the World's Children* reports. The 2019 report indicates that in South Africa 48% of children aged three and four attend some form of pre-school[75] (UNICEF focusses on this age range). Recent Statistics South Africa data suggest the figure is in fact around 67%[76]. Beyond South Africa, and using the UNICEF report, figures are 61% for Latin America, and 26% for Sub-Saharan Africa, also 70% in Brazil, 85% in Thailand, and 18% in Botswana. Countries close to South Africa's apparently under-stated 48% include Egypt (47%), Kazakhstan (55%), and Serbia (50%). Clearly, figures vary greatly by country. South Africa's figure seems not to stand out as exceptionally high or low.

In conclusion, one can say that a good thing is that levels of pre-school participation are not that low, while it is concerning that participation has not improved further since the release of the NDP. There is very little data and research on the *quality* of pre-schooling, most of which is privately provided. This is a serious knowledge gap, given that much of the policy and implementation work must focus on improving the school-readiness of young children. This includes resolving very basic problems, such as malnutrition and stunting. The NDP (p. 299) refers to the fact that **one in five young South African children suffer from stunting**.

3.3.2 Quality of schooling

The most reliable data South Africa has for gauging progress in the quality of schooling, a critical matter for economic development, are the data from three international testing

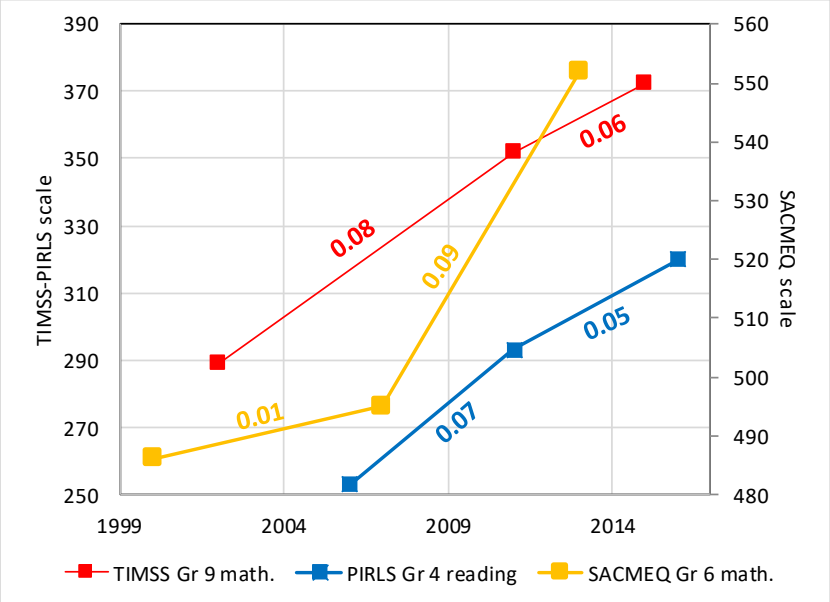
[73] Department of Basic Education, 2016b: 12; Gustafsson, 2018. What can be confusing is that different sources refer to rather different pre-school participation rates. The fact-checking organisation Africa Check looked into this in 2018: see page titled 'Fact-checked: Pres Cyril Ramaphosa's first-ever State of the Nation Address' accessed at https://africacheck.org/reports/state-of-the-nation-address-1-president-cyril-ramaphosas-claims-weighed-up.
[74] Department of Basic Education, 2019c: 9.
[75] UNICEF, 2019: 226.
[76] For ages zero to three, Stats SA data produce a participation rate of around 29%.

programmes: **TIMSS, PIRLS and SACMEQ**. Despite unfortunate issues with miscalculated statistics in both PIRLS and SACMEQ, the evidence is clear that all three programmes point to **improvements, off a very low base, which are rapid by world standards**.

Three international testing systems have all pointed to substantial quality improvements in South African schooling: TIMSS[77], SACMEQ[78] and PIRLS[79]. TIMSS and PIRLS are both run by the IEA[80], while SACMEQ is governed by a consortium of fifteen Southern and East Africa education ministers.

TIMSS has produced the most straightforward trend. The trend for TIMSS Grade 9 mathematics can be seen in Figure 2. It is common to express improvements in terms of standard deviations a year, largely as this facilitates comparisons across different testing systems using different metrics. If one translates the published TIMSS results to improvements in terms of standard deviations, one finds an annual gain of 0.08 for 2002 to 2011 and 0.06 for 2011 to 2015. Both of these figures represent gains of a magnitude which are rarely seen in the international testing systems. It does appear to be easier to produce gains off a low point of departure, and South Africa's point of departure is undoubtedly low. Yet **it is difficult to see how South Africa's gains could have been much larger than what was achieved**. It should be remembered that South Africa also participated in TIMSS in 1995 and 1999, and that no progress had been seen for the pre-2002 period[81]. The trend seen in Grade 9 mathematics has been more or less replicated in the parallel Grade 9 TIMSS science results.

Figure 2: South African trends in TIMSS, PIRLS and SACMEQ



Note: Numbers beside the lines represent improvements expressed as South African standard deviations a year.

Preliminary **SACMEQ results** distributed in 2016 pointed to improvements for the 2007 to 2013 period which were unbelievably large, not just for South Africa. This led to a correction, which analysts at the DBE and ReSEP[82] were generally satisfied with, and the 2007 to 2013

[77] Trends in International Mathematics and Science Study.
[78] Southern and Eastern Africa Consortium for Monitoring Educational Quality.
[79] Progress in International Reading Literacy Study.
[80] International Association for the Evaluation of Educational Achievement.
[81] Further details on TIMSS available in Zuze *et al* (2017). See also Gustafsson (2019a).
[82] Research on Socio-Economic Policy, University of Stellenbosch.

trend for mathematics seen in Figure 2. This 0.09 standard deviation improvement a year is large by international standards, and the largest of all the fifteen SACMEQ countries. The corresponding SACMEQ reading improvement was also large, at 0.07 standard deviations a year[83].

When the official PIRLS reports, both the international and national versions, were released in late 2017, it was reported that there had been no improvement for South Africa in Grade 4 reading between 2011 and 2016, the 2011 PIRLS score being 323 and the 2016 score being 320. Questions were raised about this, as this PIRLS no-change trend was inconsistent with the TIMSS and SACMEQ trends, but also inconsistent with an earlier 2006 to 2011 PIRLS trend. In late 2019, the DBE had the raw PIRLS data re-analysed, and found that there was indeed an error in the IEA's calculation of the 2011 baseline measure. In early 2020, the IEA removed the no-change trend for South Africa from its website and past reports. However, a problem remains in the fact that the original 2017 reports, which are widely disseminated, still reflect no improvement for South Africa. Reliable **analysis now points to South Africa's 2011 to 2016 improvement having been the third-largest of all PIRLS countries with a trend for this period**[84]. This is not surprising, given what TIMSS and SACMEQ had revealed.

Economists and investors are likely to observe these test score trends closely, given the mounting **evidence that positive trends here tend to precede and account for improvements in economic performance**. The fact that there has been confusion around these vital statistics, at least as far as SACMEQ and PIRLS are concerned, is worrying, and informs the emphasis on better monitoring in section 4 below.

South Africa can be considered to be on a trajectory which, starting around 2000 with a level of performance well below that of Botswana, has now caught up with Botswana and, assuming the current pace of improvement continues, **will reach roughly Malaysia's level of educational quality by 2030**. This becomes clear if one views trends in the TIMSS Grade 9 mathematics results[85].

The NDP, but also the UN's Sustainable Development Goals (SDGs), view the quality of education mainly in terms of **the proportion of learners reaching minimum competency levels**. Such levels are always in part determined subjectively. This explains why, for instance, in 2016 PIRLS reading just 22% of Grade 4 learners in South Africa are said to reach the PIRLS minimum level (the so-called 'low international benchmark')[86], while in 2013 SACMEQ reading a considerably higher figure of 91% emerges[87]. Essentially, the PIRLS standard is more demanding. UN documentation leans strongly towards the use of a level represented by the PIRLS (or TIMSS) 'low international benchmark' for SDG reporting purposes[88]. If one uses this standard, then apart from the 22% already mentioned, one obtains around 39% being minimally competent in TIMSS Grade 9 mathematics in 2015. In 2003, this figure was 23 percentage points lower, suggesting an annual gain of almost two percentage points a year[89]. A gain in this area of two percentage points a year can in fact be considered a 'speed limit', judging from historical data[90]. This suggests that by 2030, it is

[83] Department of Basic Education, 2017b; Department of Basic Education, 2018a.
[84] Gustafsson, 2020.
[85] Department of Basic Education, 2019b: 4.
[86] Mullis *et al*, 2017: 55.
[87] Department of Basic Education, 2017b: 30. 'Basic reading' considered the minimum.
[88] UNESCO, 2017: 42, 55.
[89] 39% is from Mullis *et al* (2016: Exhibit 2.2), the 23 percentage point difference from Reddy *et al* (2016: 6). It is not clear why the latter source has 34% instead of 39%. Note that the 39% would be an over-estimate in the sense that Grade 9 learners in South Africa write TIMSS tests which are designed for *Grade 8*.
[90] UNESCO, 2019: 20.

very unlikely that one would reach statistics any higher than 60% when it comes to the percentage of learners who are minimally proficient. This may seem pessimistic, but it is realistic. Many developing countries currently are well below the 90% proficient envisaged by the NDP for 2030. To illustrate, in PIRLS 2016 the percentage of Grade 4 children reaching the low international benchmark was 65% in Iran, 63% in Saudi Arabia, 36% in Morocco, and 31% in Egypt (as already mentioned, it was 22% in South Africa).

3.3.3 Access to non-academic subjects in schools

Technical subjects in schools are considered important in the NDP's economy and employment chapter. Trends in recent years have been towards greater and more equitable participation in such subjects. Yet there is a long way to go. Only 8% of black African upper secondary learners took a technical subject in 2018, against a figure of 56% for whites.

The NDP does not provide many details regarding technical and vocational education. No targets are provided for college graduates, though such targets are provided for universities. Technical subjects in *schools* receive little attention in the plan and none in the education chapter of the plan, though something like the Three Stream Model is viewed as an option in the economy and employment chapter (see section 3.1 above). This latter point seems to justify including trends with regard to non-academic subjects in schools in this section.

Importantly, technical subjects in schools have barely featured in government's monitoring systems, meaning little is known about them. Yet current policy discussions around, for instance, the Three Stream Model, make them important. Specifically, if expansion of existing technical offerings in schools is to occur, a proper understanding of the baseline and recent trends is needed. To illustrate the monitoring problem, **before 2015 technical subjects such as Engineering Graphics and Design were not reported on in the main national Grade 12 examination report**, and since then only a few aggregate statistics at the national level have been provided. Statistics which might reveal the inequalities relating to access to technical subjects have not been available. To assist in plugging this gap, Appendix C presents an analysis of trends with regard to these subjects.

Over the longer term, access to technical subjects has improved. The percentage of candidates in the Grade 12 public examinations taking a technical subject increased from 9% to 12% between 2002 and 2018, with the increase in absolute numbers, from 44,000 to 75,000, being much larger. Appendix C provides details regarding the important matter of how technical subjects are defined for the current discussion. The increases have been driven largely by better participation rates among black African and coloured youths, and amongst females. All this is good. Yet in 2018 the inequalities remained staggering: **black African participation remains particularly low, at 8%. For white candidates it is as high as 56%**. The fact that the country's economic elite participates strongly in these subjects suggests these subjects do enjoy considerable returns in the labour market. In many ways there is an inversion of what many would consider a normal situation. In countries such as Germany, which is often put forward as a model for technical education in schools, technical subject participation is highest among the least socio-economically advantaged. In South Africa, the reverse applies.

What has the trend been since the NDP was released? Between 2012 and 2018 there was substantial growth in the technical subjects. For instance, **the number of candidates taking a computer subject increased by 78%**. The growth for Engineering Graphics and Design was 31%[91]. There is thus a healthy trend, and a trend towards less inequality, which should feature more prominently on the monitoring and policymaking radars. For instance, how can successes achieved in certain provinces in improving access in township and rural schools be

[91] New analysis of the relevant microdata.

replicated in other provinces? There are indications that some provinces, such as Free State, have been more successful than others in this regard[92].

3.3.4 Completion of twelve years of education

Currently, around **57% of South Africa's youths successfully complete twelve years of education**, and this has been improving by about one percentage point a year. These figures are about normal for a middle income country. Yet concerns about the competencies of, in particular, Grade 12 graduates are widespread. This is not surprising, given the fact that the quality of schooling from the lowest grades remains poor, despite recent improvements.

As indicated in section 2.1, the NDP prioritises getting all or almost all youths to complete twelve years of education, with their final years being spent in either a school or a college. Currently, school predominates, with around 54% of youths obtaining the National Senior Certificate (NSC) from a school, and only around 3% obtaining an equivalent qualification from a college *without already having the NSC* (see Appendix B for further details). This give a total of 57%. In counting youths completing twelve years of education one can obviously not double-count those who obtain *both* the NSC *and* an equivalent college qualification.

There has been considerable progress. The number of youths obtaining the NSC (or the equivalent schools-based Senior Certificate before 2008), rose by 70% from around 250,000 in 1994 to 425,000 in 2018[93]. Increases have been relatively constant over the years. As argued in Appendix B, **the rate of improvement, at around an additional 1.0% of a youth cohort each year, is good by international standards**, though some countries, notably China, have seen an even faster improvement, of around 1.7% of a youth cohort a year. However, even at China's speed, it would take South Africa another 25 years to reach 100% upper secondary completion, meaning this would be achieved by around 2045, and not the 2030 implicitly envisaged by the NDP.

In the public debates, what seems to overshadow the narrative of an improvement is the fact that so many youths still do *not* complete upper secondary education. This would come to around 43% of youths currently – 100% minus the aforementioned 57%. The general concerns are understandable, but there are at least two misconceptions at play. Firstly, as explained in Appendix B, **South Africa's upper secondary completion ratio is fairly normal by middle income country standards**. It is 60% in China. Secondly, there seems to be a perception that while having just the NSC offers some opportunity of employment, anything less presents an opportunity of virtually zero. Put differently, it is assumed that employers, when employing relatively unskilled youths, will exhaust the supply of NSC-holders before they turn to people without the NSC. However, matters are not that simple: in recent years those with an NSC have an employment probability of 70%, while those with just a Grade 11, and hence no national qualification, have an employment probability of 55%[94]. The latter figure is worse, but clearly not zero.

It seems important for debates around upper secondary completion to look more holistically at the substantial problems, in particular unemployment, experienced by youths. The solution is not simply to ensure that all youths obtain the NSC in the very near future, something which the evidence suggests is not possible. How to bring about **a more efficient articulation between schools and colleges, the role of the proposed Grade 9 certificate, and more vocationally-oriented offerings in schools should all be part of the policy mix**.

[92] Department of Basic Education, 2015: 15.
[93] Department of Basic Education, 2019b: 8.
[94] Van der Berg and Hofmeyr, 2018: 28.

A legitimate concern is that while the number of NSCs may be growing, the competencies displayed by the average Matriculant may have been declining. Even if the quality of secondary schooling is improving, as suggested strongly by the TIMSS trends discussed above, competencies of Matriculants could conceivably be declining if growth in the number of NSCs outstrips improvements in quality. But has this been happening? The Grade 12 examinations data are inherently not well suited for answering this question, because subject choices of examination candidates shift, and the comparability of subject-specific marks is limited, even after Umalusi's standardisation process. This is a problem not unique to South Africa's Matric. National examinations of this kind are seldom good instruments of quality trends. However, the DBE has presented some information on how many candidates reach critical mark thresholds in mathematics or physical science, with adjustments to deal with changing degrees of examination difficulty. This analysis points to the number of mathematics candidates reaching a mark of 50%, with the standard pegged to the year 2013, increasing by 3.0% a year, while the corresponding figure for physical science is 3.9%. The fact that the number of NSCs has been increasing at a slower pace, at about 2.2% a year[95], **does not support the hypothesis that the competencies of the average Matriculant have been declining**. Yet this matter should be investigated further, even with the non-ideal Grade 12 examinations data.

The fact that between 2016 and 2019 the number of learners obtaining 40% or 50% in mathematics declined by over 10% is a special case that warrants attention. The DBE's analysis explains that this is due to **the mathematics examinations becoming more difficult, in other words a comparability problem**. This is plausible, in a context where Grade 12 physical science outcomes have clearly improved, and Grade 9 TIMSS mathematics results have improved[96]. Yet this does create monitoring problems, as well as problems for universities which use mathematics marks for determining entry into specific programmes. The question is whether the mark standardisation procedures of Umalusi could be strengthened to avoid these anomalies.

The fact that **in certain instances a subject mark of 30% in the NSC is considered a pass** has been a topic of lively debate. For instance, to obtain a 'Bachelors-level' NSC allowing for Bachelors studies at a university, the minimum requirement is that six of seven subjects must be passed, with two subjects considered being passed if 30% is obtained, though for the other four subjects at least 50% must be obtained. It has been argued, firstly, that this reflects a lowering of standards when the transition from the old Senior Certificate to the NSC occurred between 2007 and 2008. Secondly, it has been argued that it is standard practice internationally to apply a pass threshold of 50% across all subjects. Neither of these arguments are supported by the evidence. This is clear from both a 2014 report by a Ministerial Committee[97] and a 2013 research report prepared for Umalusi[98]. While the Ministerial Committee did not recommend radical changes to the pass thresholds, it makes it clear that these matters should be open to debate. The report for Umalusi warns that setting the pass threshold for all subjects at 50% would mean that only 10% of examination candidates would obtain the NSC, of any type.

To conclude, the competencies of South Africa's Matriculants have been improving, but need to improve further. How one achieves this is a complex matter. It clearly requires **better teaching from the earliest grades**.

[95] Department of Basic Education, 2019b: 7, 10.
[96] Department of Basic Education, 2019b: 59; Department of Basic Education, 2020: 16, 55.
[97] Department of Basic Education, 2014.
[98] Wedekind, 2013.

3.3.5 Graduations from post-school institutions

The NDP places a strong emphasis on targets relating to graduations at universities. Assuming historical trends of around an additional 10,000 university graduations, of any type, each year, **the NDP target of 425,000 university graduations by 2030 is almost attainable**. Around 70% of university-based qualifications obtained currently are degrees, and around 45% of university-based qualifications are *first-time degrees*.

Even after taking into proper account definitional and data issues, it is clear that the attainment of degrees and other post-school qualifications has steadily increased. Above all, it is important to gauge increases in the *population* possessing some post-school qualification, as well as qualifications of specific types. This has large implications for understanding the labour market. This is different from gauging the total number of new graduations occurring at post-school institutions. Many of those graduations would be achieved by people who already held some earlier post-school qualification. For example, some people will obtain an undergraduate degree and then a postgraduate diploma allowing for specialisation. Monitoring the outputs of, say, universities is obviously important, but this should be done while also gauging, for instance, increases in the percentage of youths holding some university qualification. As pointed out in section 2.1, the NDP could be clearer on the latter.

Section 2.1 explains that one can deduce that the NDP envisages an increase in ***first-time*** **university qualifications** (meaning degrees, diplomas or certificates) from a baseline of around 120,000 to 320,000 in 2030. This is important for understanding new opportunities acquired by youths. The 170,000 estimate for first-time university qualifications in 2019 appearing in the key indicator table above is derived from official 2016 DHET figures, which provide a total for that year of around 155,000[99]. A 2016 to 2019 increase of 9% based on enrolment trends was then assumed[100], giving the 170,000 estimate.

Presidency's *25 year review* puts forward as a key gain for post-school education the fact that graduations from universities increased from around 60,000 in 1998 to 210,000 in 2016[101]. An examination of DHET's 2016 statistics report makes it clear this refers to any qualifications obtained at *public* universities. Moreover, this includes qualifications which are not first-time qualifications. Including private universities would add another 40,000 graduations in 2016, taking the figure from 210,000 to 250,000[102]. At this rate, of an annual rise of about 10,000 graduations a year[103], the NDP's target of 425,000 in 2030 is almost attainable. Specifically, **the long-range trend, since 1998, if sustained, would take the country to 400,000 by 2030**.

Returning to first-time university qualifications, Appendix A below provides a relatively detailed attempt at accounting for this, while examining whether DHET's statistics, drawn from institutional data, tally with Stata SA household data on the possession of certain qualifications. The two data sources do in fact tally relatively well, though there are some important caveats. Stats SA data suggest that for the period 2009 to 2018 there has been an annual inflow of around 120,000 *degree*-holders in the population (this takes into account attrition in the form of ageing degree-holders). DHET's statistics point to a somewhat lower annual figure of, for instance, 107,000 new first-time degrees in 2016. Some of this gap might be accounted for by South Africans obtaining degrees from foreign universities through distance education. The magnitude of the latter seems not to be known, though we know that around 8,000 South Africans are attending foreign universities currently[104]. All this points to

[99] See Table 5 below.
[100] Department of Higher Education and Training, 2019: 30.
[101] Presidency, 2019: 79.
[102] Of the 250,000, around 170,000 would be university degrees (under- or post-graduate).
[103] This assumes there were no graduations from private institutions in 1998, which is roughly correct.
[104] From UIS.Stat.

the importance of monitoring beyond just South African institutions, of examining international flows, and of using the student-level data DHET has to determine how many people become qualified for the first time through a South African university. (DHET is mostly able to determine the latter as its data includes the national identity number of every student.)

The NDP does not have specific targets for *degrees*, whether first-time or degrees in general. Instead, the NDP focusses on targets for university qualifications in general. To provide a sense of degree graduations, **around 70% of university-based qualifications obtained currently are degrees, and around 45% of university-based qualifications are first-time degrees**[105]**,** as mentioned earlier. Trends with respect to university degrees are important, given the value of degrees in the labour market, and given that they represent many of South Africa's scarce skills. The current annual addition of around 120,000 degrees in the population referred to above can be considered fairly satisfactory, at least in terms of the NDP's targets. The NDP says, by implication, that first-time university qualifications of any kind should increase from 120,000 to 320,000 over 18 years (2012 to 2030). If one assumes that 70%[106] of this is first-time university *degrees*, then the flow of such degrees should in 2019 sit at around 138,000, and it should rise to around 225,000 by 2030, according to the NDP. The country is a little off-track when it comes to the attainment of first-time university degrees, judging from the gap between the 120,000 from the previous paragraph and 138,000. This is if one takes a comprehensive view of what is happening in the population. Clearly, a comprehensive view is necessary. The gap becomes larger if one only considers what South African institutions produce. Then the 120,000 becomes (at least for 2016) the 107,000 referred to in the previous paragraph. And if one considers just South African *public* institutions, as Presidency's *25 year review* does, then the under-achievement problem appears even more serious.

Apart from graduations, NDP targets and DHET reports do pay considerable attention to **enrolments and indicators of efficiency**. These other measures are important, though what is important for understanding the labour market is above all the attainment of qualifications, and of course the quality of skills represented by these. It is worth noting that a recent IMF report has over-stated to a large degree the inefficiency in South Africa's universities, by stating that only 25% of undergraduate contact students at universities get to graduate[107]. The true figure is around 50%, which is also worrying. The IMF's figure came about as a result of a DHET report which presented graduations in a particularly confusing manner[108]. This underscores the need for greater rigour in the monitoring process and the preparation of reports. Clearly, once a misleading figure makes its way into an IMF report, it is likely to be quoted elsewhere too.

3.3.6 Increases in non-degree post-school qualifications in the population

By 2018, 6% of adults aged 20 to 65 held a university degree, while **a further 10% held some other post-school qualifications**. Both indicators have been moving up over the last decade, at a similar rate in absolute terms. DHET could make better use of its student-level data to analyse, for instance, flows from schools into colleges.

Increases in non-degree post-school qualifications in the population, regardless of institution type, have been similar to those for degrees in absolute terms, but smaller in proportional terms. To illustrate, the proportion of the population aged 20 to 65 holding a degree increased from 3.8% to 5.9% between 2009 and 2018, a 50% increase, while the

[105] From Table 5 below.
[106] Also Table 5.
[107] Mlachila and Moeletsi, 2019: 25.
[108] The DHET source appears in the IMF report.

proportion holding some other post-school qualification increased from 8% to 10%, a 20% increase[109]. Clearly, degree increases are off a lower base.

It is a bit difficult to gauge trends in non-degree post-school qualifications, and specifically what these trends mean for addressing the country's skills shortages, given the current ways of reporting on this. For example, DHET's Labour Market Intelligence Partnership (LMIP) initiative, while having made headway in terms of clarifying concepts and understanding information systems, has yet to produce much in the way of a deeper interrogation of DHET's data (and correspondences with Stats SA household data)[110]. To achieve the latter, the first priority should be to use existing statistics and data better, and then to explore further investments in monitoring systems. A key challenge is to use the TVET college student records which DHET collects in better ways. This should include linking those records to DBE unit records on learners to **examine flows between schools and colleges**, but also linking to the university student records to examine flows between colleges and universities. The latter may not be large, but it would be worth confirming this.

4 What needs to be done to ensure that goals and targets set are achieved by 2030? Is course correction needed?

What to prioritise in the education and training system to achieve the goals of the NDP, while taking into account developments unfolding after the NDP was released in 2012, is obviously a contested terrain. The priorities put forward below focus on **preparing youths for the labour market**, as that is the focus of the current paper. In many ways, they take forward a set of proposals focussing on education from a 2018 document of the National Planning Commission (2018a, 2018b). The five proposals of the 2018 document are the following:

1. Restore confidence in the appointment of school principals.
2. Monitor school performance.
3. Raise standard of reading comprehension and numeracy in the Foundation Phase.
4. Strengthen youth pathways from learning to earning.
5. Drive equitable access for poor and working class students to higher education and training.

The relevant extract of the 2018 document appears as Appendix D below.

The four priorities appearing below are moreover informed by discussions with relevant stakeholders, and attempt to identify things the NPC can influence relatively easily.

Priority 1: 'Reboot' the NDP's focus on accountability in the schooling sector.

The NDP's school accountability framework, referred to as the **'results-oriented mutual accountability' system**, is one of the most explicit and strategically important policy proposals made in the NDP in relation to schools. Yet this system, and even accountability in general, is not adequately dealt with in the national and provincial plans of the education departments (see section 3.2). The adoption of accountability as a desirable value is relatively clear in these plans. Embracing the notion of accountability in one's work culture is important, but this is not enough. A clear framework of who is accountability to whom, and why, and through which accountability systems, needs to be clear. Moreover, there are enormous risks inherent in accountability systems, risks which need to be minimised through careful systems design. The history of ANA has provided useful lessons in this regard. The NDP (p. 311) is clear on the risks and difficulties:

[109] Sources for this are as explained in Appendix A.
[110] Reddy, 2018.

> Accountability measures are likely to be met with resistance because they change the balance of power. At first, they will add to the workload of teachers and principals and put new obligations on parents. Once systems and routines are established, the workload will lessen and the system will deliver benefits for everyone.

Both the NDP and the international literature emphasise having **accountability systems which revolve around the *school*, and by implication the school principal**. This is important. Individual teacher accountability when it comes to things like daily attendance is crucial, but accountability systems focussing on learning outcomes, which are at the heart of educational progress, should use the school as the key unit of accountability.

In promoting accountability in the schooling system, the NPC could insist on two things. On the one hand, it could insist on an **unpacking of the 'results-oriented mutual accountability' of the NDP** by the DBE, and the expression of this in its plans. Secondly, it could insist on better use of the Grade 12 examinations data to produce meaningful school-level progress statistics, possibly in the form of **school report cards**, which could be used in meaningful yet careful ways to hold school principals accountable. How this occurs must be negotiated and made very explicit, in the interests of fairness and labour peace. Success in developing such tools at the secondary level would put the DBE in a better position to do something similar at the primary level, a level which remains 'data-poor'.

Accountability reforms surrounding the school principal need to be taken forward in a manner whereby raising of school principal responsibilities goes hand in hand with the **professionalisation of principals**. This means reforms should not simply lead to more bureaucracy for principals and that reforms need to be duly negotiated. Clearly, this is a process that takes many years. The fact that many principal posts are currently becoming vacant, due to a bulge of principals reaching retirement age[111], offers a golden opportunity to invigorate the country's corps of approximately 25,000 principals, and to ensure that this corps becomes a key driver of change in the schooling sector. Lastly, corruption in the appointment of school principal process must be combatted at all costs.

Priority 2: Stimulate the debate on how best to improve and monitor reading in the early grades.

This priority is in a way a part of the previous one, but is important enough to warrant separate attention. As pointed out in section 3.1, South Africa has made important advances in terms of finding better ways of teaching reading in schools. The curriculum does not need to change, though very large classes may still pose a hindrance. What is needed is a mix of certain materials made available to teachers, and some individualised coaching of teachers. The latter is not prohibitively costly[112]. However, **support to teachers in the absence of accountability and monitoring is not enough**. Teachers need to have the necessary training and tools, but teachers and their principals must also feel that there are consequences attached to not improving levels of reading in schools, and that success in individual schools is acknowledged and appreciated.

Had the ANA programme not been discontinued in 2015, ANA would have been the obvious system, or at least point of departure, for monitoring progress across all schools. In the absence of ANA, and given the low likelihood of a new censal assessment system in the near future (see the discussion in section 3.1), **what can be considered second-best options should be explored**. Fortunately, there are a few such options which appear promising. A prominent example is work that has occurred using the Tangerine open-source software designed for use on a basic Android smartphone to capture oral responses of a learner in

[111] Wils, 2015.
[112] Department of Basic Education, 2017.

relation to some reading questions. This software, which has been used across more than thirty countries, allows for data capturing by a teacher or fieldworker, and data synchronisation over the internet. It is not intended for use in fully-fledged censal monitoring, which generally requires written responses from learners and very large databases. However, it is suitable for use in a less rigorous context, for instance where external evaluators perform a 'dip-stick' assessment of just a few learners per school.

Tangerine has been used in the DBE's Early Grade Reading Study and in at least one other South African research project[113]. It has moreover been reported that in Gauteng 'dip-stick' monitoring of early grade reading by district officials, using tablets, began in 2019 (though this work is not described in the provincial education department's 2019/20 annual performance plan, and it is not clear whether Tangerine was used). The Tangerine software is open source, meaning no supplier needs to be paid, though adaptation of the software obviously means paying programmers to do this work.

Priority 3: Insist on better monitoring of sectoral trends.

Monitoring may seem like a backroom activity, yet it influences public debates in extremely important ways. **Action or inaction in education is driven to a large extent by public opinion and public debates.** This is perhaps more true for education than for any other sector. To put it crudely, everyone has been to school, so everyone feels qualified to offer policy advice on educational improvement. If policymakers in government do not have access to credible and 'deep' analysis of what is getting better and what is getting worse in the education sector, they may under-prioritise certain issues, and be distracted by 'red herrings', problems which are not as serious as they may at first seem.

This report has explained that monitoring and the communication of important trends to stakeholders and the public tend to be weak. For example, **a 'national crisis' relating to the dropping out of youths before they successfully complete Grade 12**, despite the fact that South Africa's upper secondary completion statistics are not unusual for a middle income country, and despite the fact that this problem is declining at a relatively rapid rate, tends to dominate the public debates around schooling. It overshadows other matters which *should* receive more attention: how university-ready Matriculants are; whether the employability of those who do not successfully complete twelve years of education can be improved; inherited race-based inequalities with regard to access to technical subjects in schools; the extent to which movements from schools into post-school institutions are facilitating inter-generational and across-class mobility.

The schooling system is widely considered to be failing, though all international test data point to considerable improvements, albeit from a very low base. This means that despair and a search for 'magic bullets' to fix the problem predominate, where **there should be more discussion around what is causing the improvements, and how current trends could be sustained**.

Very **little information on the unit costs of different types of education** means discussions around trade-offs between, say, school and college education are often poorly informed. Though the NDP raises concerns around quality differences across higher education institutions, there have been virtually no attempts to use the currently available data to begin monitoring whether these inequalities are growing or declining.

Given the NPCs proximity to the Department of Planning, Monitoring and Evaluation (DPME), it is well placed to **put pressure on DPME, but also the education departments, via DPME, to improve the information and knowledge base** on which the public debates

[113] Department of Basic Education, 2019a; Spaull, Pretorius and Mohohlwane, 2019; Gove, 2015.

and policymaking rest. The point of departure is not zero. As explained in section 3.2, DBE and DHET display many strengths when it comes to the task of monitoring. Yet it can be argued that the quality of monitoring is still relatively low in South Africa's education system.

Priority 4: Provide direction in the technology-intensive 4IR and e-Education policy spaces.

Technology change and notions of future technology trends, sometimes expressed in relation to tackling immense environmental challenges, feature very strongly in all policy debates today. This is especially true for the education sector. This comes with its own **tensions and anxieties**. Do traditional notions of how education happens, and resistance to technological change in education, hold back progress? To what extent should South Africa focus on 'homegrown' technological innovation, as opposed to 'riding the wave' of new technologies driven by the 'technology superpowers', in particular the United States and China? How can government action mitigate new and rising social inequalities brought about by unequal access to, and skills relating to, new technologies?

The **Fourth Industrial Revolution** (4IR) has become a widely used concept in the education debates. What exactly it means for education policy worldwide and in South Africa is still a matter of intense debate. 4IR should be adapted and 'South Africanised'. The NPC could assist in bringing together the 4IR concept and the realities of South African policymaking in education and other sectors. A part of the challenge lies in steering the debates in such a manner that there is a good balance between more long-term planning and planning of interventions which can have a more immediate impact. As an example of the latter, though improving the access of the historically disadvantaged to existing technical subjects in schools may not seem like 4IR-type innovation, it is a relatively predictable and reliable way of widening certain pathways into employment and preparing youths for the twenty-first century.

5 Gaps in the NDP and recommendations for the way forward

This section covers what in the terms of reference was captured by two separate and final level 1 headings: 'What are the existing gaps in the NDP', and 'What recommendations (could be made)in respect of institutions, accountabilities, performance, implementation and prioritisation?'

As was argued in section 2, the NDP captures what should be done in the education sector relatively well. The NDP, whose production involved bringing together South African expertise from various sectors, is a national asset, although it is not perfect. For instance, it reflects a few misunderstandings of how assessment systems work. Yet even where many would find fault with particular details in the plan, its intentions are right, and such parts of the plan at least serve as a stable point of departure for disagreement and continued debate. Without the NDP, there would be far less focus and strategic direction in the education sector.

The disruption costs of refining the education chapter of the NDP far outweighs the benefits of rather slightly improving the focus and updating the plan. The plan should be left as it stands. Yet it is useful to consider what one *would* change in the NDP, with respect to education, if the opportunity arose. This is what is considered in the remainder of this section, using five rubrics provided in the terms of reference. What follows is closely linked to the proposals made in section 4 above.

With regard to **institutions**, the NDP's emphasis on the centrality of the school and school management within the schooling system is in line with the evidence on educational improvement. However, above the level of the school, the NDP could have been clearer about what institutions play what role to improve school effectiveness. Was it appropriate, for instance, for the DBE to design and manage the Annual National Assessments (ANA)

programme? Insofar as ANA's role was to track improvements, and the DBE sets education policies, was the DBE not acting as player and referee simultaneously? The NDP raises concerns about the unevenness of quality across post-school institutions, but made no specific proposals around how the existing and fragmented quality assurance arrangements in the post-school sector would be strengthened.

The **accountabilities** proposed in the NDP include a particularly good framework for school accountability, which has received too little attention by the education departments. Inadequate and often confusing accountabilities thus continue to hold the schooling sector back. This is undoubtedly linked to difficult relations between government and teacher unions, in particular the largest union, the South African Democratic Teachers Union (SADTU). Perhaps one way of improving employer-union relations is to recall that people are accountable for failures, but also successes. Educational quality has improved in South Africa's schools, according to reliable evidence. Should credit not go to teachers for this? Remarkably, unions themselves appear not to have asked this question, which probably reflects how poorly educational improvement is understood in South Africa. Clearly, both unions and the education departments need to take responsibility for lack of progress with respect to the NDP's accountability system. But some acknowledgement of existing progress might help to create the political atmosphere needed for further policy reforms.

On one important accountability question, the NDP is silent. How will the education departments (or any government department) be held accountable for taking the NDP forward? How would the monitoring of progress occur? How would success or failure be defined? How would disagreements over specific details in the NDP be handled in the planning process? Though the Department of Planning, Monitoring and Evaluation (DPME) has attempted to address these questions, monitoring and feedback processes around the NDP's implementation remain weak.

While the NDP focusses considerably on how the **performance** and educational outcomes of schools can improve, this type of focus is weak when it comes to post-school institutions. With regard to the latter, the focus is largely about increased access. It would have been good for the NDP to focus more on how increased access can be realised while not compromising quality.

The NDP devotes a whole chapter to **implementation** challenges. Chapter 13, titled 'Building a capable and developmental state' focusses on improving the work culture and technical skills of the public service. It also envisages a more strategic and pro-active role for PALAMA, subsequently renamed the National School of Government. What would have been good is for the sector-specific capabilities of the state to have been made clearer. In education, there is a great need for more assessment experts (and psychometricians), education economists, and specialists in educational technologies.

A key purpose of the NDP is better **prioritisation**. The NDP has indeed assisted in bringing about a focus on key levers of change. Here the key challenge is ongoing communication and reinforcement of the NDP's priorities within the education policy debates. If the NDP were to be revised, it would be good see the incorporation of recently emerging focus areas, such as the Fourth Industrial Revolution, within the original framework of the NDP's priorities. This would help to counteract the idea that such emerging focus areas represent something completely new, which are unrelated to what the NDP had proposed.

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Appendix A: Stocks and flows of post-school qualifications

Most of government's monitoring of trends with regard to graduations at the post-school level draw from administrative data from post-school institutions. Household data on what qualifications South Africans hold are used to a much lesser extent. Moreover, whether the two data sources at least roughly tally has received very little focus. The NDP's ultimate aim is that there should be more qualifications and skills in the population, meaning examining *stocks* as seen in the household data is especially important. The aim of the current appendix is in part to provide an indication of what work should be undertaken on a regular basis to examine the alignment between stocks of qualifications in the population and the *flows* of new qualifications each year from post-school institutions.

Both the administrative and household data present data challenges. Stats SA's household surveys use classifications of qualifications which may appear ambiguous when household respond to questions. Moreover, those classifications do occasionally change, which presents comparability problems. Table 1 provides the classifications used in the General Household Survey (GHS) for the years 2009 to 2018. Numbers beside categories are those appearing in the questionnaires and metadata. The letters in the first column represent the four super-categories devised specifically for the analysis that follows. Clearly, between 2016 and 2017 important changes in the classifications occurred, though the overall structure was retained.

Table 1: Stats SA classifications of qualifications

	2009-2016		2017-1018	
D	12	Grade 12/Standard 10/Form 5/Matric (No Exemption)	12	Grade 12/Standard 10/Form 5/National Senior Certificate/Matric/NCV Level 4/Occupational Certificate NQF Level 4
D	13	Grade 12/Standard 10/Form 5/Matric (Exemption/Bachelor's pass*)		
C	14	NTC 1/ N1/NC (V) Level 2	13	NTC I/ N1
C	15	NTC 2/ N2/ NC (V) Level 3	14	NTC II/ N2
C	16	NTC 3/ N3/NC (V)/Level 4	15	NTC III/ N3
C	17	N4/NTC 4	16	N4/NTC 4/Occupational Certificate NQF Level 5
C	18	N5/NTC 5	17	N5/NTC 5/Occupational Certificate NQF Level 5
C	19	N6/NTC 6	18	N6/NTC 6/Occupational Certificate NQF Level 5
C	20	Certificate with less than Grade 12/Std 10	19	Certificate with less than Grade 12/Std 10
C	21	Diploma with less than Grade 12/Std 10	20	Diploma with less than Grade 12/Std 10
C	22	Certificate with Grade 12/Std 10	21	Higher/National/Advanced certificate with Grade 12/Std 10/Occupational Certificate NQF Level 5
C	23	Diploma with Grade 12/Std 10	22	Diploma with Grade 12/Std 10/Occupational Certificate NQF Level 6
B	24	Higher Diploma (Technikon/University of Technology)	23	Higher Diploma/Occupational Certificate (B Tech Diploma) NQF Level 7
A	25	Post Higher Diploma (Technikon/University of Technology Masters, Doctoral)	24	Post Higher Diploma (Masters Diploma and Masters Degree) NQF Level 9
A	26	Bachelors Degree	25	Bachelors Degree/Occupational Certificate - NQF Level 7
A	27	Bachelors Degree and post-graduate diploma	26	Honours Degree/Postgraduate Diploma/Occupational Certificate NQF Level 8
A	28	Honours Degree		
A	29	Higher degree (Masters, Doctorate)	27	Doctoral Degrees (Doctoral Diploma and Phd) NQF Level 10

Table 2 below provides statistics for selected GHS years, and the annual percentage change for the 2009 to 2016 period, a period when consistent classifications were used. The classifications appearing in Table 2 are those applicable in this earlier period. A few things stand out, for instance the particularly large increases, off a low base, of the TVET qualifications in categories 14 to 19. The figures in Table 2 must be interpreted with caution, however. They are sensitive to, firstly, the size of the total population used and, secondly, margins of error associated with the smallness of the sample. To illustrate the latter, in the 2016 sample there were only 196 respondents with a higher degree. This 196 is then inflated to around 209,000 in the population (category 29 in the table).

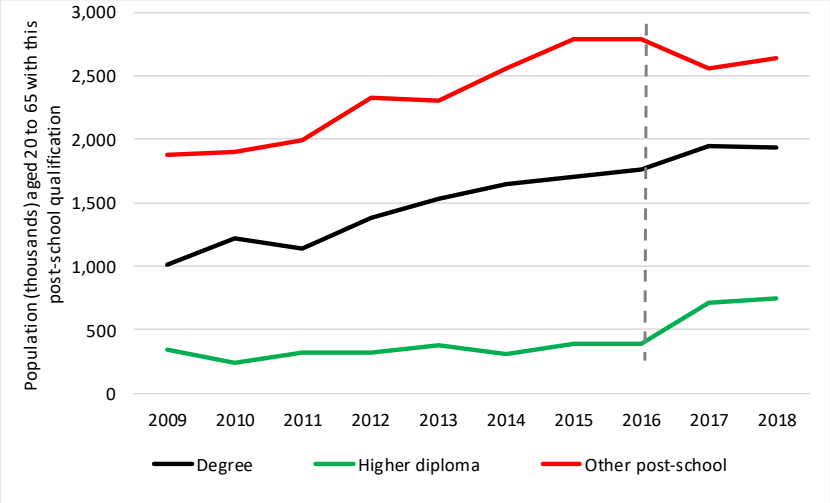
Table 2: 2009-2016 trends for the Stats SA classifications

		2009	2016	2009-2016 slope (%)	2018
12	Grade 12 … (No Exemption)	6046	8613	4.8	10482
13	Grade 12 … (Exemption/Bachelor's pass*)	1012	658	-3.9	
14	NTC 1/ N1/NC (V) Level 2	31	52	6.5	278
15	NTC 2/ N2/ NC (V) Level 3	41	76	12.2	54
16	NTC 3/ N3/NC (V)/Level 4	87	138	8.8	106
17	N4/NTC 4	56	95	10.7	112
18	N5/NTC 5	34	85	8.1	137
19	N6/NTC 6	94	115	11.5	185
20	Certificate with less than Grade 12/Std 10	58	76	5.6	80
21	Diploma with less than Grade 12/Std 10	89	81	1.0	61
22	Certificate with Grade 12/Std 10	362	674	9.1	289
23	Diploma with Grade 12/Std 10	1027	1399	4.6	1329
24	Higher Diploma …	341	383	3.8	748
25	Post Higher Diploma …	109	158	6.4	336
26	Bachelors Degree	496	971	9.0	885
27	Bachelors Degree and post-graduate diploma	101	146	2.3	638
28	Honours Degree	143	273	9.0	
29	Higher degree (Masters, Doctorate)	158	209	6.1	75

Note: Absolute figures are thousands of people, based on the GHS weights, which in turn are based on assumptions around the total population. Total population assumed by the GHS is (rounded) 49 million in 2009, 55 million in 2016 and 57 million in 2018. The 2009 to 2016 annual percentage change uses data from all the years in the 2009 to 2016 period, in other words eight years.

Figure 3 illustrates overall trends, using the super-categories referred to above. Large increases are suggested, for instance an increase of around one million in the number of degrees in the population.

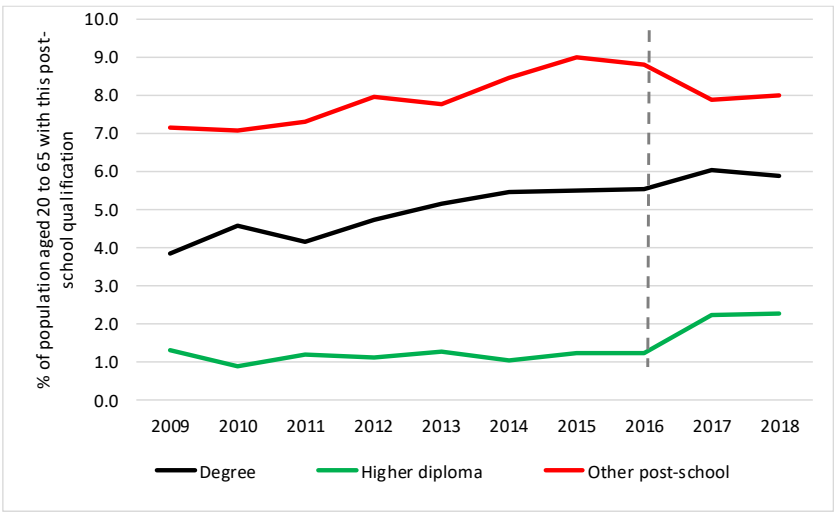
Figure 3: Numbers of qualifications 2009 to 2018



Note: 'Degree' is 'A' from Table 7, 'Higher diploma' is 'B', and 'Other post-school is 'C'. The vertical dashed line indicates the last year of one Stats SA system of classification.

If, instead of absolute numbers, one considers holders of qualifications as a percentage of the population *aged 20 to 65*, the gains appear smaller, due to population growth. Thus, for instance, degrees did not double, but increased by around 50% (from 4% of the age 20 to 65 population to 6%).

Figure 4: Qualifications 2009 to 2018 as percentages of population

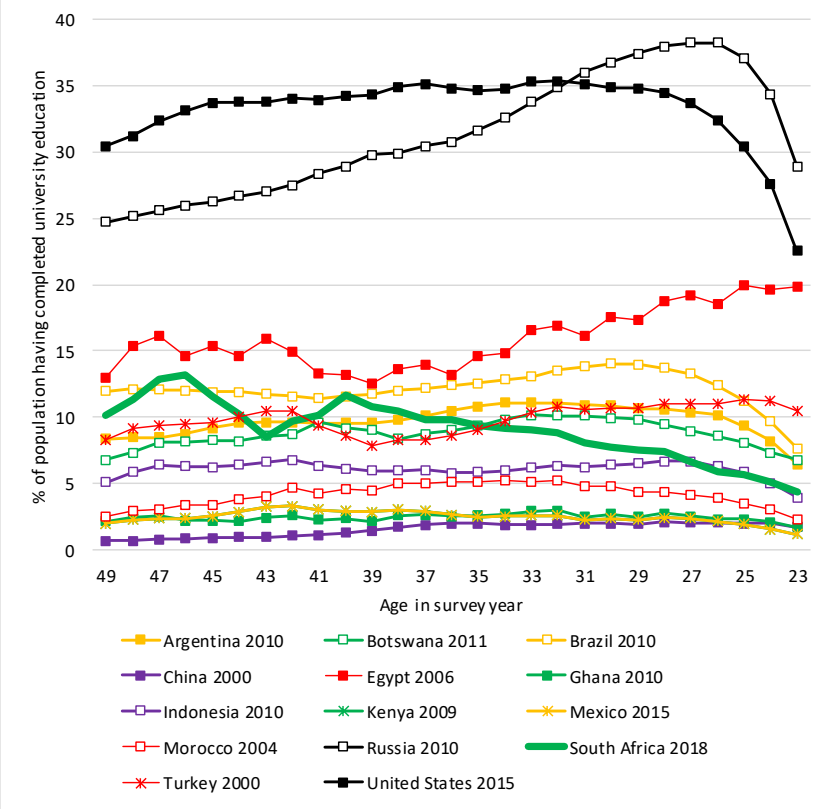


The following two graphs indicate how South Africa compares internationally with respect to having completed some university qualification. The non-South African countries were selected if they were developing countries in the G20, and if data not older than from 2000 were available in the IPUMS[114] source. Moreover, three African countries not in the G20, but which have participated in large international testing programmes, are included. Finally, Russia and the USA were included. Here caution must be exercised due to the fact that some data for the comparator countries are relatively old. However, to some extent comparing across different ages, for instance age 30 in South Africa to age 48 in China, helps to improve comparability. Clearly, South Africa has an unusual curve. Older people are significantly

[114] Integrated Public Use Microdata Series.

more likely to hold a university qualification than younger people, in a way not seen in any of the other comparator countries. As will be seen below, this is *not* because the inflow of university qualifications has declined over time. What makes South Africa unusual is that many people obtain their first university qualification relatively late in life. This has far-reaching implications for planning, and appears not to be sufficiently appreciated in the current policy debates. Though it is widely believed that too few South Africans obtain a university degree – hence the targets of the NDP – what is noteworthy is that South Africa's relative position changes considerably depending on what age group one looks at. At younger ages, most comparator countries clearly fare better than South Africa. However, above age 40, South Africa has among the best educated population, in terms of university degrees.

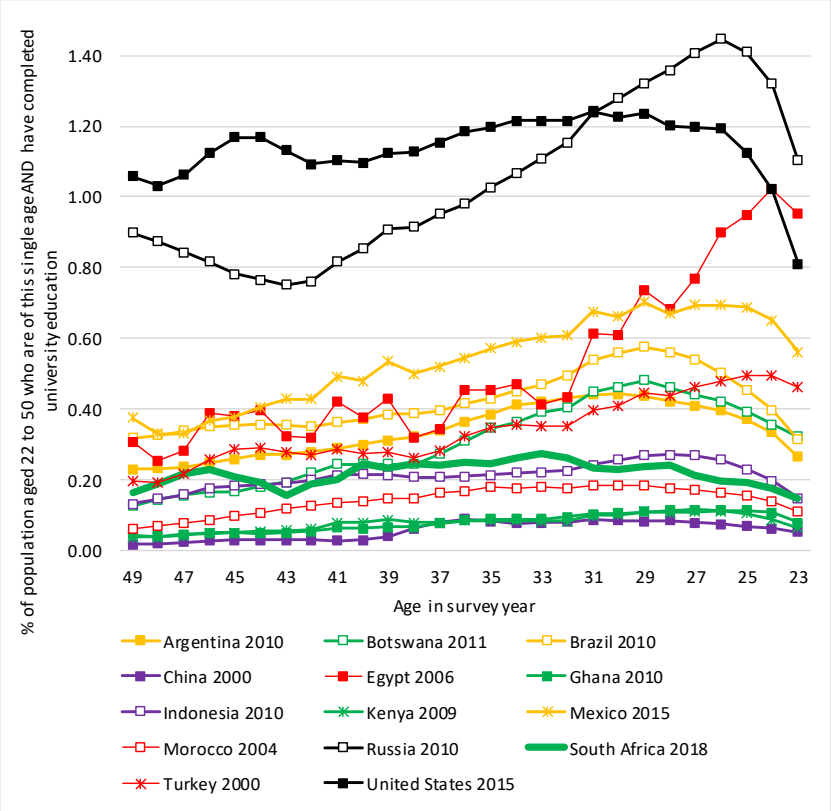
Figure 5: International comparison of university attainment (I)



Source: The IPUMS harmonised data, which in turn draws from national statistical agency household data (https://international.ipums.org). South Africa's data is that of the GHS 2018. Importantly, 'Higher diploma' was included for South Africa. For other countries, any university qualification seems to be counted in the pre-existing IPUMS variable used for this analysis. Curves are smoothed using moving averages over three years.

However, if one takes into account South Africa's population pyramid, specifically the fact that there are fewer older than young people, the apparent advantage of the previous graph disappears. In Figure 6 below, each point per curve reflects the percentage of the total population aged 22 to 50, making points for each country comparable in absolute terms across ages. In this picture, South Africa does not perform well at any age, though internationally it still performs better at older than younger ages.

Figure 6: International comparison of university attainment (II)



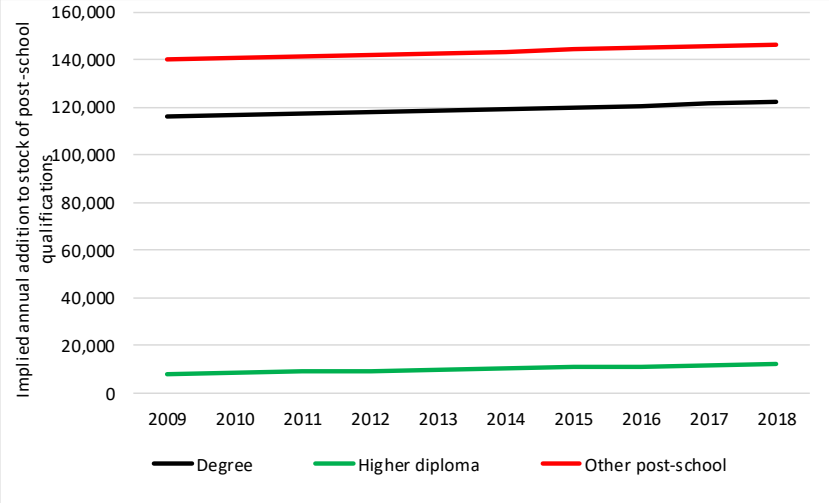
The analysis now turns to the implied flows of qualifications into the South African adult population, flows which are largely the result of new qualifications emerging from post-school institutions. The analysis is relatively rough, and could be tightened up in future, for instance through verifications across more household datasets. Table 3 indicates roughly how many qualifications are 'lost' each year due to ageing of the population. These values were obtained by averaging across ages 63 to 67.

Table 3: Annual attrition of qualifications at age 65

	2009	2016
Degree	8,738	14,649
Higher diploma	1,857	5,892
Other post-school	9,585	15,537

Any inflows produced by, for instance, local post-school institutions must address two things: firstly, the losses illustrated in Table 3 must be replaced and, secondly, the NDP's (implied) aim to have more qualifications in the population must be addressed. In order to use the household data to arrive at estimates of the inflows of newly qualified people into the population, one needs to observe the increases in the stock of qualifications and then *add* the assumed replacements, in other words the Table 3 figures. A linear trend using the Table 3 values produced values for all years. This approach produces the following graph, Figure 7, where the Figure 3 trends have also been smoothed using a linear trend. A key question is whether the values in this graph correspond, at least roughly, to current understandings around what the post-school sector is producing.

Figure 7: Qualifications inflows implied by the household data



An inflow of around 120,000 degrees a year, seen in the above graph, compares to 106,825 degrees obtained in 2016 according to DHET 2016 statistics, indicated in Table 4 below (93,915 plus 12,910). This is a remarkably good correspondence. The gap would have been wider for previous years, when university outputs of graduates were lower, probably around 40% lower in 2009 than in 2016 according to the relevant reports. This type of gap would be the result of a combination of factors. The population estimates used for the GHS may be higher than they should be[115]. South Africa seems to be a net exporter of tertiary education, with foreign contact students enrolled in South Africa, around 60,000, exceeding by far the number of South African students abroad, around 8,000[116]. The gap would thus be *wider* if one took into account international flows. Importantly, the 8,000 figure excludes students studying by distance with a foreign institution while remaining in South Africa. This is likely to be a further explanation for the gap. The reason why postgraduate degrees are not included in Table 4 is that the focus is, as far as possible, on first-time graduations. If someone with an undergraduate degree obtains a Masters degree, this does not add to the stock of the population with a degree of some sort.

Table 4: More or less first-time graduations in 2016 according to DHET

Categories roughly representing non-duplicate qualifications	Graduates
Undergraduate degrees public HEIs (p. 22).	93,915
Undergraduate diplomas and certificates at public HEIs (p. 22)	53,289
Undergraduate degrees at private HEIs (p. 31).	12,910
Undergraduate diplomas and certificates at private HEIs (p. 31)	21,277
Completed NC(V) at a public or private college (p. 41).	11,898
Completed N3 at a public or private college (p. 41).	54,314
GETC completions at community colleges (p. 58)	28,024
'Certificated' through SETA system (p. 7).	180,998
Completing artisanal (p. 92).	21,198
Total	477,823

Source: Department of Higher Education and Training, 2018.

The DHET statistical report combines all non-degree qualifications from HEIs in one category, meaning no direct comparison is possible against the 'Higher diploma' category seen in Figure 7. However, comparing the total across all the three Figure 7 categories, which comes to around 270,000 additional qualifications a year, against the Table 4 total of around

[115] Gustafsson, 2012.

[116] Figures from Department of Higher Education and Training (2018) and the UIS online data repository, UIS.Stat.

480,000 is instructive. Clearly, despite the attempt to estimate first-time graduations only, around 210,000 of the 480,000, must represent a second or further post-school qualification, for instance someone who obtained a degree from a university, and then a diploma.

Table 5 below draws from the same DHET report as the previous table, and focusses just on HEIs. This table is referred to extensively in the rest of the report in order to clarify recent numbers of graduations.

Table 5: HEI graduations in 2016 according to DHET

	Degrees			Non-degrees				
	First time	Not first time	Total	First time*	Not first time*	Total	Total first time	Grand total
Public	93,915	55,872	149,787	33,412	19,877	53,289	127,327	203,076
Private	12,910	5,499	18,409	14,921	6,356	21,277	27,831	39,686
Total	106,825	61,371	168,196	48,333	26,233	74,566	155,158	242,762

Note: Columns with an asterisk (*) use the assumption that non-degree totals are split across the categories 'First time' and 'Not first time' in the same proportion as degree totals.

Finally, the last two graphs confirm that growth in the number of qualifications is spread fairly evenly across ages. The pattern of South Africans obtaining their first post-school qualification at a relatively high age has persisted. When *first-time* graduations from post-school institutions are reported on, many would assume that these are obtained by relatively young South Africans. Figure 8 and Figure 9 make it clear that such an assumption is not really true.

Figure 8: University degrees by age in the GHS data

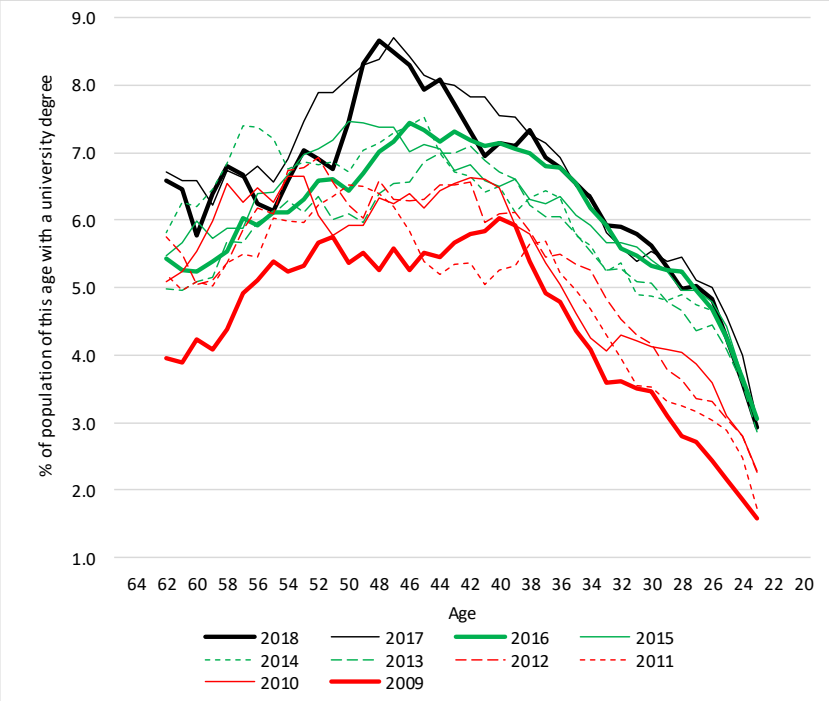
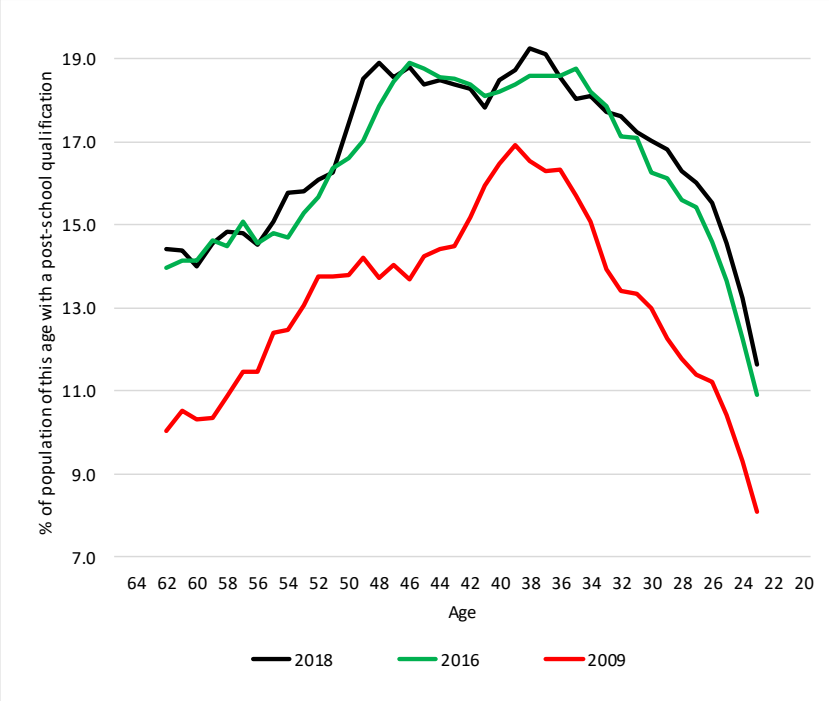


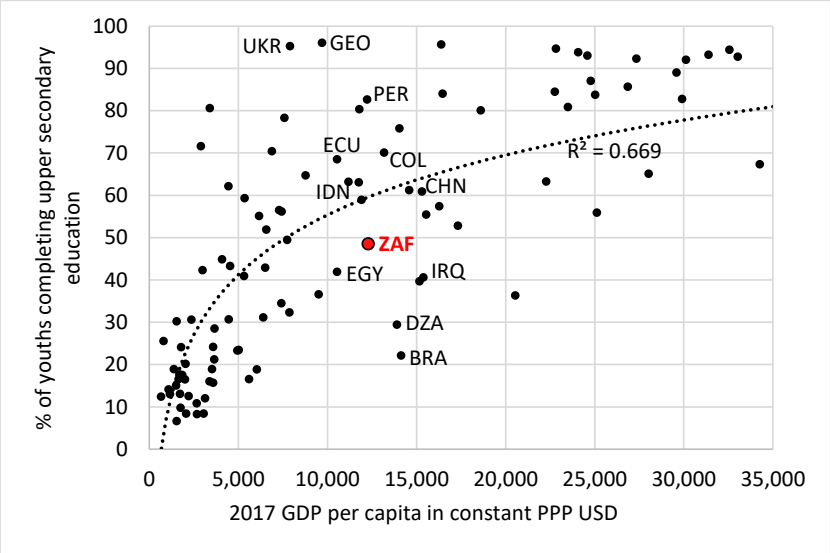
Figure 9: Post-school qualifications by age in the GHS data



Appendix B: An international comparison of upper secondary completion

Whether South Africa's upper secondary completion rate is acceptable, given the country's level of development, is a question which can in part be answered through an international comparison. Figure 10 provides such a comparison. According to the analysis, South Africa's (ZAF) value, at 49% of youths, is around 10 percentage points below the general trend. Instead of 49% of youths completing upper secondary schooling, around 60% should. However, in actual fact around 57% of youths obtain some qualification at the level of the Matric. The 49% is almost certainly an under-estimate, in part because of the ages considered – this becomes clear if one looks at the UIS indicator definition and takes into account the fact that many South African youths obtain the Matric rather late. A further factor is that the 49% almost certainly excludes Matric-equivalent qualifications obtained from colleges. If one includes these, the likely South African value rises by about 3 percentage points. The 57% mentioned previously is based on 54% obtaining the National Senior Certificate (NSC), according to 2018 household data[117] (this also emerges from an analysis of the DBE's learner data[118]), and a further 3% obtaining something equivalent from a college *without already having an NSC*[119]. Thus, South Africa is relatively close to the international norm suggested by the graph, the distance being perhaps 3 percentage points (57% against 60%).

Figure 10: Completion of secondary schooling and income per capita

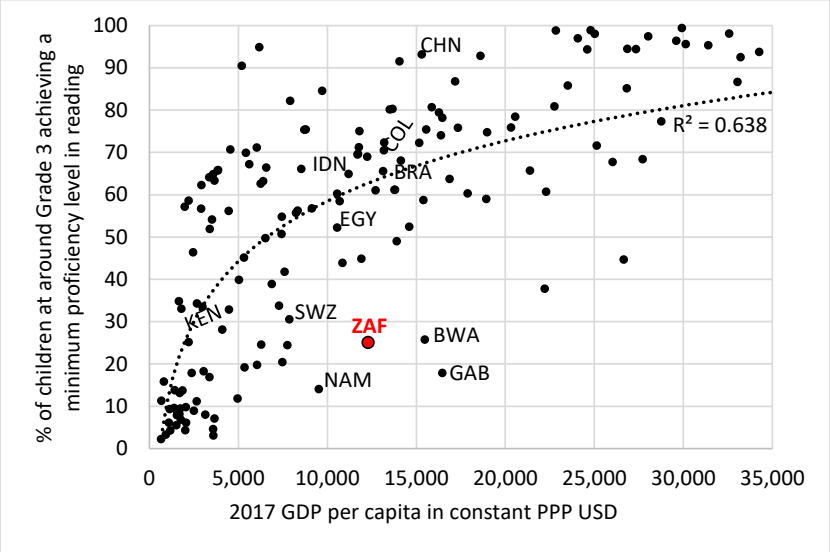


Note: The trendline is logarithmic.
Source: UIS.Stat of UNESCO. The vertical axis represents the indicator titled 'Completion rate for upper secondary education (household survey data)'. The most recent indicator value per country from the period 2013 to 2018 was used.

Figure 11 below illustrates one area where South Africa clearly *is* below the international norm: reading proficiency at the lower primary level. The contrast between the two graphs is telling. The trendline in Figure 11 suggests the quality of schooling in South Africa is more like that of a low income country, for instance Lesotho or Nepal, than a middle income country. Interestingly, neighbouring Botswana suffers from a similar under-performance problem, and performs worse educationally than Kenya, a low income country. Arguably, raising the number of youths obtaining the Matric (or some equivalent) has been over-emphasised in the policy debates, while early grade reading has been *under*-emphasised.

[117] Department of Basic Education, 2019b: 8.
[118] Department of Basic Education, 2016b: 61.
[119] Department of Basic Education, 2019b: 81.

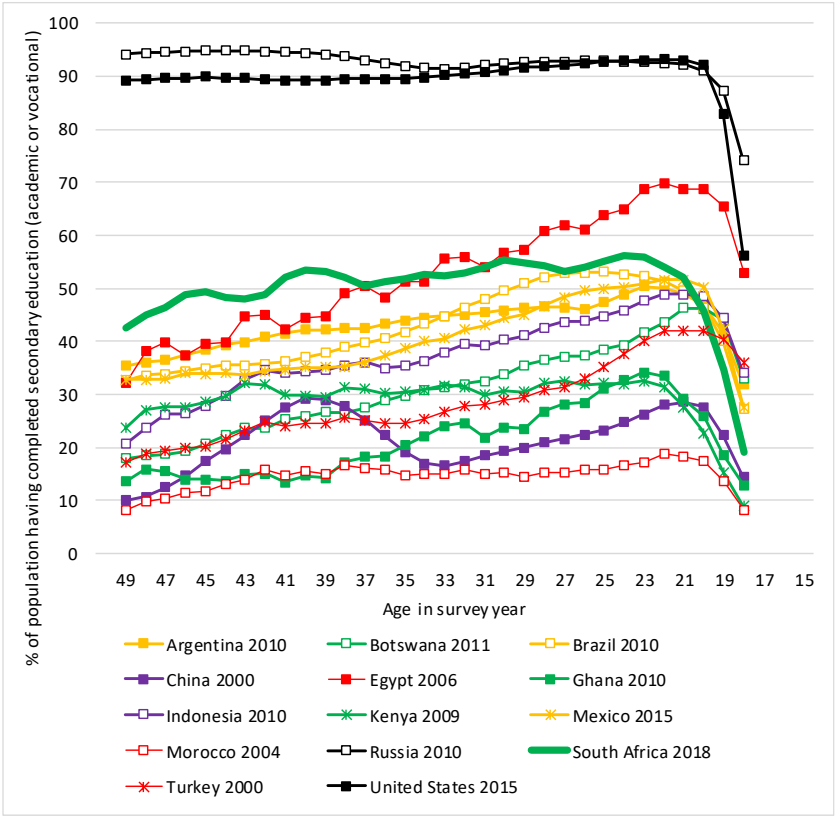
Figure 11: Lower primary reading proficiency and income per capita



Note: The trendline is logarithmic.
Source: UIS.Stat of UNESCO for income. Proficiency statistics described on the vertical axis are statistics described in UNESCO (2020).

Figure 12 below needs to be interpreted with caution as the data source has country data for very different points in time. To illustrate, China's upper secondary completion in 2000 of just under 30% (in Figure 12) has improved to 60% in recent years (Figure 10). Figure 12 is included here largely because it helps to understand the speed with which upper secondary completion typically improves over time. This one sees by looking at the slopes of the curves, meaning the difference in upper secondary completion between people born recently and people born several decades ago. Brazil, Ghana and Egypt stand out as particularly fast improvers, with all seeing annual improvements of around 1.0% of an age cohort of the population. Egypt displays the highest rate, at 1.2% a year. The 2000 to roughly 2018 Chinese improvement described above is even more impressive, with about an additional 1.7% of a youth age cohort achieving upper secondary completion each year. South Africa's change, from 45% of a youth cohort in 2007 to 54% in 2018, counting just NSCs, comes to an annual increase of 0.8% of a youth cohort. Expansions in the college sector would raise this a little, perhaps to 1.0%. This suggests there is room for improvement in South Africa, in particular if a rate of change such as that seen in China is deemed possible for South Africa.

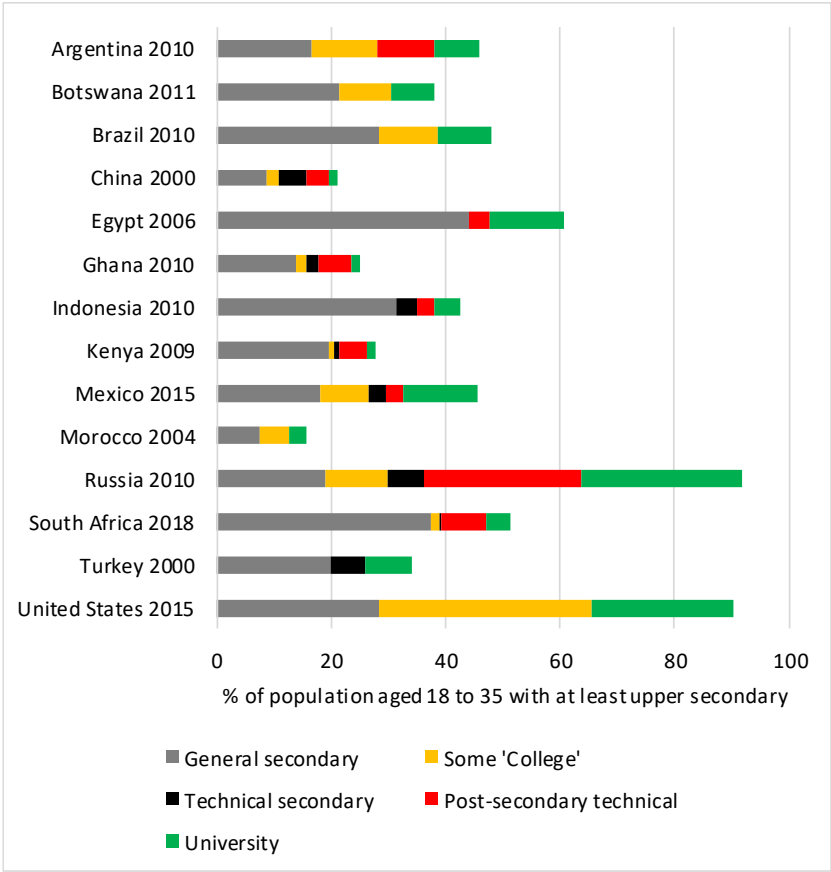
Figure 12: Completion of secondary schooling by age across countries



Source: Data sources and selection of countries are as for Figure 5.

Finally, Figure 13 uses the same data source as the previous graph. It confirms that South Africa places an exceptionally strong emphasis on completing secondary schooling, relative to obtaining some other form of education, such as vocational training or university studies. Of all the countries, South Africa's grey segment, representing just upper secondary completion, as a percentage of the total bar is the highest, at 78%.

Figure 13: Highest level of education secondary and above



Note: Age range used here is 18 to 35. 'General secondary' here means upper secondary was completed.

Appendix C: Historical trends for technical subjects in schools

What constitutes a 'technical subject' in the school curriculum is of course debatable. For the analysis that follows, a subject was considered technical if it necessarily required the use of some industrial machinery, including computers, or involved designing something which might be produced industrially. The subjects in question are essentially limited to the grades 10 to 12 curriculum. Moreover, the ideal maximum class size specified in the national policy on educator post distributions[120] served as a useful basis for identifying technical subjects. Any subject with an ideal maximum class size of 25 or less was considered a candidate for being considered a technical subject. Lower class sizes are considered necessary where special equipment is needed. Six subjects with an ideal maximum class size not exceeding 25 were *not* included in the set studied below: Consumer Studies, Hospitality Studies and four arts subjects (Dance Studies; Dramatic Arts; Music and Visual Arts). Consumer Studies and Hospitality Studies do in fact involve the use of machinery, largely in relation to food. However, they were excluded in order to facilitate a focus on industries outside the food industry, given the especially strong focus among labour economists on the skills shortfalls in these other industries.

Examinations microdata from 2002 and 2018 were used. In these two years, a different system of subjects applied, though there were many similarities. The criteria explained in the previous paragraph are applicable to the current system and hence the 2018 data. Comparing two systems obviously creates comparability problems, but ones which are not prohibitive for the analysis. Table 6 lists the subjects considered, and the category created for the analysis. Subject names are as they appear in the data.

[120] Department of Basic Education, 2009.

Table 6: Technical subjects in schools

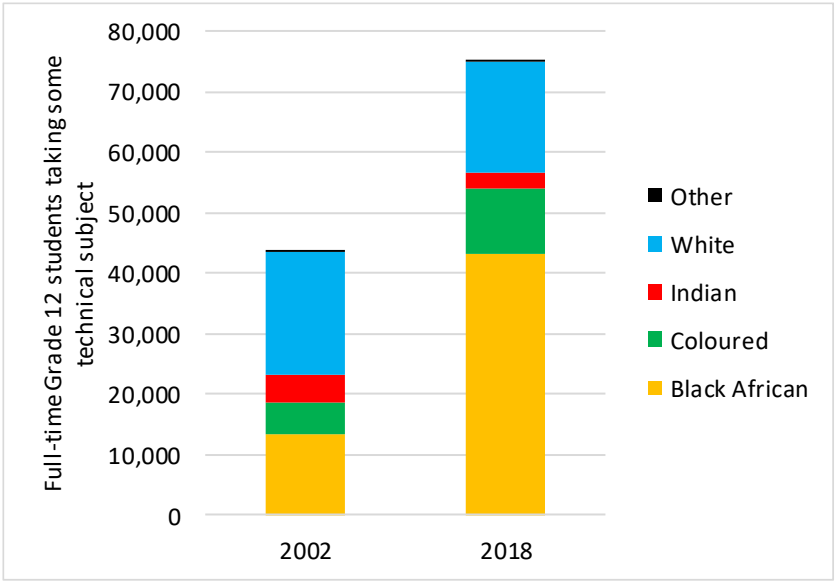
Category (for this report)	2002 subject description in data	2018 subject description in data
Technical maths/science		Technical Mathematics; Technical Sciences
Computer-related	COMPUTER STUDIES	Computer Applications Technology; Information Technology
Design	TECHNICAL DRAWING	Design; Engineering Graphics and Desig
Engineering-related	TECHNIKA: ELECTRICAL; TECHNIKA: ELECTRONICS; TECHNIKA: MECHANICAL; TECHNOLOGY	Civil Technology (Civil Servic; Civil Technology (Construction; Civil Technology (Woodworking); Mechanical Technology (Automot; Mechanical Technology (Fitting; Mechanical Technology (Welding; Nautical Science
Agricultural (other than Agricultural Science)	ANIMAL HUSBANDRY; APPLIED AGRICULTURAL SCIENCE; FARM MECHANICS; FIELD HUSBANDRY; PRACTICAL AGRICULTURAL SCIENCE	Agricultural Management Practi; Agricultural Technology; Equine Studies
Electrical-related	ELECTRICIAN WORK; ELECTRICIAN-WORK; ELECTRICIANS WORK; ELECTRONICS	Electrical Technology (Digital; Electrical Technology (Electro; Electrical Technology (Power S
Motor-related	FITTING AND TURNING; MOTOR MECHANICS	
Metalwork-related	METALWORK; MOTOR BODY REPAIRING; PLUMBING AND SHEET METAL WORK; PLUMBING AND SHEET METALWORK; WELDING AND METALWORKING	
Building-related	BRICKLAYING AND PLASTERING; BUILDING CONSTRUCTION	
Woodwork	WOODWORK; WOODWORKING	

The subject Agricultural Sciences in the current curriculum, which also existed in the previous curriculum (and hence in 2002), warrants some discussion. Though its name sounds similar to the 2018 subjects Agricultural Management Practices and Agricultural Technology, two subjects which are included in the above list, it is rather different and non-technical (using the criteria described earlier). Its ideal maximum class size is 37 in the policy, which is the highest possible value. It moreover has no 'practical assessment task', or PAT, when learner assessment occurs. The teaching of agriculture in secondary schools was shaped in particular ways during the pre-1994 apartheid era. Agricultural Sciences, as a largely theoretical subject, without a practical component, was offered in schools reserved for the black African population before 1994. In 2018, over 99% of learners taking Agricultural Sciences were black African. Its demographics had thus barely shifted. It has always been a subject taken by a large number of learners: in 2018 there were around 110,000 examination candidates in Agricultural Sciences, slightly more than for the subject Accounting.

Under apartheid, whites who studied agriculture took different subjects, which *did* have a practical component, and which evolved into the 2018 agricultural subjects listed in Table 6 above. These subjects have become more demographically diverse over time. In 2002, 53% of Grade 12 learners in the agricultural subjects listed in Table 6 were black African. By 2018, the figure had risen to 78% (which would still be an under-representation of black African learners given that 86% of examination candidates were black African). The number of learners taking what have been classified as the truly technical agricultural subjects is not high: only around 3,000 in 2018, a tiny fraction of the learners taking the large and essentially theoretical Agricultural Sciences.

Figure 14 indicates that the number of examination candidates taking at least one of the subjects in the Table 4 list increased, from around 44,000 to 75,000. Most of the growth was due to growth in the number black African and coloured candidates. What is not shown is that the percentage of females among the takers of technical subjects rose from 26% to 41%, mainly due to growth in subjects other than the computer subjects. Despite the growth, by 2018 only a third of schools participating in the public Grade 12 examinations were offering at least one subject listed in Table 6.

Figure 14: Technical subject participation 2002 and 2018 by population group



Source: Own analysis of Grade 12 examinations microdata.

Figure 15 displays in which subject groups the growth occurred. Much of the growth occurred in the computer subjects. Totals are higher in Figure 15 compared to Figure 14, because some students would be counted more than once in Figure 15.

Figure 15: Technical subject participation 2002 and 2018 by subject

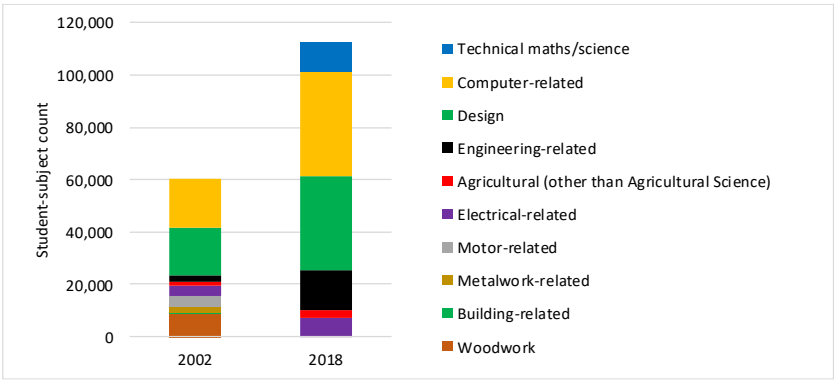


Figure 16 shows that in general there has been an increase in the percentage of Grade 12 candidates taking a technical subject, the exception being the Indian population group. The inequalities are glaring, however, even in 2018. In 2018, a white candidate was still seven times as likely to take a technical subject as a black African candidate. This pattern points to a schooling system which still privileges the elite when it comes to access to technical subjects. It could be argued that ideally it is the historically disadvantaged who should have the greatest access to these subjects.

Figure 16: Percentage of students taking technical subjects in 2002 and 2018

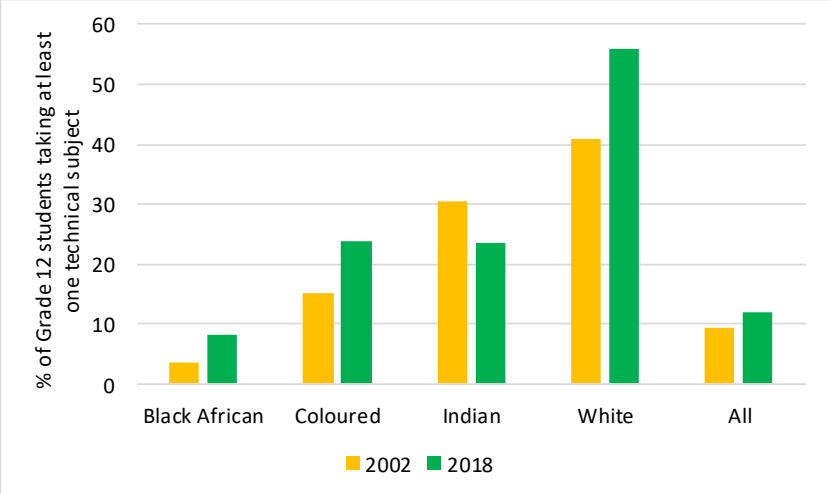


Table 7 provides further details on the inequalities. In every subject category in 2018, white candidates enjoyed better access to some form of technical education, relative to black African candidates.

Table 7: Percentage of Grade 12 students in two groups taking technical subjects

	Black African		White	
	2002	2018	2002	2018
Woodwork	0.6		5.8	
Building-related	0.2		0.7	
Metalwork-related	0.2		1.9	
Motor-related	0.4		3.0	
Electrical-related	0.6	1.1	2.3	2.1
Agricultural (other than Agricultural Science)	0.2	0.4	1.3	2.0
Engineering-related	0.1	2.1	4.2	5.2
Design	2.1	4.1	16.4	28.3
Computer-related	1.0	3.8	20.6	34.2
Technical maths/science		1.7		4.5
Any of the above	3.6	8.1	40.8	55.8

Appendix D: Table of education priorities published previously by NPC

The following table of priorities was part of a wider set of tables included in a 2018 NPC proposal document (National Planning Commission, 2018a, 2018b). The wider set included tables for three other priority areas: commitment to strengthen governance; boost demand by leveraging existing capacity; a revitalisation charter. This table, dealing with education, is copied from the original.

DRIVE TRANSFORMATION THROUGH HIGH PRIORITY EDUCATION IMPROVEMENTS

Proposal	**What is proposed?**	**Why this?**
Drive high-priority basic education improvements		Education will have single-biggest impact on improving employability, reducing poverty and inequality
Restore confidence in the appointment of school principals	Take the opportunity to appoint new principals according to the spirit of the NDP.	There is significant evidence to show that school principals play a critical role in school performance. The number of school principals retiring each year is on the rise due to a bulge of older principals. This creates a window of opportunity to ensure that the right people are appointed to lead our schools, something to which the NDP pays much attention. The 2016 report of the Ministerial Task Team examining the selling of posts serves as a reminder that corruption in appointment processes is a real risk that must be actively combatted.
Monitor school performance	Re-introduce annual testing of school performance for grades 3, 6 and 9 as from 2018.	Better systems to gauge the performance of primary schools are essential if principals are to be held accountable and reliably evaluated. Assessments conducted and marked within schools play an important role, but, as emphasised by the NDP, there is also a need to reintroduce a "system-wide measure of quality for all primary schools" along the lines of the ANA programme, which was halted in 2015. The new system should obviously avoid the pitfalls of ANA. Officially, all relevant stakeholders, including teacher unions, support this move and have been hammering out the details for over a year. This process must lead to a new testing system soon, and all parties need to accept that even an imperfect system is better than no system at all.
Raise standard of reading comprehension and numeracy in the Foundation Phase	Forge a national pact to drive the Read to Lead Campaign on early reading: key public, private and civic stakeholders align and commit to a small set of concrete objectives and deliverables to address early-grade reading using proven evidence-based interventions. By 2025, every child should be able to read for meaning in their home language and in English by	By Grade 4, about 75% of children in low-quintile schools are behind on the curriculum, and 78% of Grade 4s cannot read for meaning in any language. There is therefore no foundation for the majority of learners from low-income households for effective learning. The Minister of Basic Education launched a Read to Lead Campaign in 2015. This

Proposal	What is proposed?	Why this?
	Grade 3. Immediate action should proceed on the following: • Roll out the DBE's Early Grade Reading Programme to build and deploy qualified, competent and experienced coaches, including the systems to successfully recruit, train and appoint them. • Distribute graded reading material in Home Language and English as a First Additional Language to Foundation Phase classrooms, and integrate them into the lesson plans in low quintile schools. • Support the national reading for enjoyment campaign – Nal'ibali to reach a critical mass of children and adults. • Accelerate roll out of access to affordable, high quality early learning services to 3 and 4 year old children through the ECD Coalition of Donors working with the Department of Social Development.	campaign should be elevated and given far more prominence. All stakeholders should commit to participating in it.[121] Learning to read for meaning is the most important skill children acquire in primary school. Evidence from the Early Grade Reading Study initiated by the DBE in conjunction with the University of the Witwatersrand and international partners shows that learning outcomes of children only improve when teachers are equipped with the right books and lesson plans and – crucially – are supported by a coach who visits them in their classroom. Over a two-year period, their approach led to an improvement of an equivalent of 40% of one year of learning. The DBE is now ready to expand beyond study phase to roll out to the wider school system. Building a foundation of qualified, competent and experienced coaches, including the systems to successfully recruit, train and appoint them, is critical if we are to ensure that every child has a fair chance of success at school. There is a deep shortage of appropriately graded reading materials in the home languages in low-quintile schools. The DBE has now developed a full set of graded readers in Setswana and isiZulu and for English as First Additional Language. This new set of materials should be delivered to all Foundation Phase classrooms and integrated into lesson plans. Evidence shows that reading enjoyment will be a critical contributor to improving comprehension. This is borne out in the PIRLS data which shows a major achievement gap between learners that enjoy reading and those that don't, as well a much higher achievement for learners' whose parents read stories with them. This Nal'ibali campaign focuses on reading enjoyment. It is already implemented in 420 'Story-Powered Schools' in rural KZN and EC (reaching 99 000 learners); through 2 343 reading clubs reaching over 63 000 children in communities; through 6 000 'FUNda Laders' (community volunteers) that are reading for joy role models; and through the production of multilingual stories distributed through newspapers and magazines, mass media campaigns on radio (in all languages), and a billboard campaign

[121] Guidance is offered at https://www.education.gov.za/Programmes/Read2Lead.aspx.

Proposal	What is proposed?	Why this?
		(DGMT 2015; Krashen 2015; Howie et al 2016).
Strengthen youth pathways from learning to earning	Build on successful public and private sector labour market interventions that connect youth in PSET as well as NEETs to workplace based learning opportunities. Examples include Harambee or Gauteng's Tshepo 1 million. Business and government are to ensure that real work opportunities are available for student and graduate interns, and for students engaged in learnerships and apprenticeships. Business and government are to build on emerging public-private partnerships in provision of TVET programmes. Targets for workplace-based learning opportunities need to be set, balancing realism and ambition. In the first instance, find middle ground between low DHET PSET workplace-based learning opportunities, targets and very high CEO YES internship targets with the aim of improving the impact of PSET. The objectives should be to lift the PSET throughput rate and post-PSET employment chances.	There has been mnimal net employment creation for youth under the age of 25 over the past decade. South African historically disadvantaged youth especially have poor access to first work opportunities. Private and public sector cooperation are needed at a significantly greater scale to bridge this gap. TVET enrolments have doubled without concommitant capacity development. Some companies have introduced joint offerings with both TVET Colleges and Universities that effectively expand the responsiveness of the PSET system. These should be encouraged and expanded. The DHET targets for promoting workplace opportunities for those in PSET are 140 000 by 2018/19, rising from 107 504 in 2015/16. The CEO YES campaign has set targets of one million internships over three years. There should be a reasonable prospect of being employed after the opportunity. This will require business and government commitment to employment creation and also to working with the higher education and training sector to ensure that students obtain realistic career guidance and that their courses are relevant to labour market needs.
Drive equitable access for poor and working class students to higher education and training	Government has committed to free access to university and TVETs for households with annual incomes below R350,000. The commitment is to phasing this in over five years. In 2018, approximately 84,000 first time entry university students and approximately 90% of TVET students will receive these bursaries. Those with NSFAS loans, now in their second and third year of study in a three year degree will now receive this support in the form of a bursary. Registration fees will be covered by NSFAS and will no longer be paid directly by students. DHET has further committed to strengthening NSFAS administrative systems to reduce delays, which by April 2018, were still in evidence. There are emerging efforts by the private sector to narrow the funding gap for students that do not qualify for	The number of students in HET from low income households has expanded substantially since the advent of democracy. To have the desired effect on life chances, graduation rates need to be dramatically improved. The introduction of fully subsidized HET and innovative private sector financial solutions for poor and working class students will dramatically reduce barriers and stress on the students and their families and raise the chance of completion.

Proposal	What is proposed?	Why this?
	NSFAS and such services should be encouraged.	