



[THE THREE STREAM SYSTEM]

A report on the Department of Basic Education's plans to stream learners into either technical, vocational or general schools: the context of existing technical education institutions, lessons from international experience, critical analysis of the economic rationale and impact of the plan, its implications for social equity, and reflection on the new scheme's relationship to the failures of basic education in South Africa.

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1. The DBE's plans

1.1 What we know so far

On 10 January 2016, the Department of Basic Education (DBE) announced a plan to substantially revamp South Africa's education system. Currently, nearly all learners are tracked to complete a general curriculum, which emphasises subjects like language, maths, science, economics, geography, etc. The new plan would place learners into three different streams of education summarized below:

- Academic: This is the traditional, general education system that South Africa uses. Learners are prepared for further studies in university.
- Technical vocational: Preparation for technical college. This will include 12 subjects focusing on electrical, mechanical, and civil engineering.
- Technical occupational: This stream will focus on preparing people for work immediately after secondary school. It will include the development of skills like: spray-painting, panel-beating, hairdressing, woodwork, glasswork, glazing, welding, upholstery, husbandry (farming) and many more.¹

The two technical streams are expected to eventually absorb 60% of all learners. This streaming will reportedly begin as early as Grade 4. At this stage learners will either continue in the General Education and Training (GET) stream until grade 9, or enter a 'GETC: S&V school' (Skills and Vocational school) where they will be able to work towards an NQF level 1 (grade 9 equivalent) certificate, which is a school-leaving qualification. The proportions of learners who are expected to be routed away from general education at this early stage is not known.

After NQF level 1/grade 9, these two streams will be split into the three streams described above. All learners will be streamed: learners in the general stream will be able to be routed into any one of the three types of schools, while learners who entered the skills and vocational schools before completing grade 9 will only be able to enter one of the two technical streams, or they can immediately enter the world of work.²

Details about how this programme will be implemented, via what method learners will be placed in different streams, and similar important questions have yet to be answered. It is also unclear how the DBE decided on the subjects to be studied in technical schools, and what surveys of the labour market, employer demand, and existing skills formation this was based on. Nor is it known how up-to-date the subjects will be as regards new technological developments in production.

The programme will be piloted in 2017 in 58 schools. It has been indicated that this number refers to the occupational stream pilot only (referred to as General Education and Training Certificate: Skills and Vocational, up until grade 9), as the vocational stream curriculum is already being rolled out through the CAPS (Curriculum and Assessment Policy Standards) for technical schools.

These 58 schools are the only ones in the country which are equipped to be part of the new occupational stream at pre-grade 10 level.³ They are all 'schools of skills', which cater for learners with

¹<http://www.news24.com/SouthAfrica/News/new-school-system-planned-for-2017-report-20160110>

² "The Introduction Of A Three Stream Model Into The Basic Education Sector" Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

³ "The Introduction Of A Three Stream Model Into The Basic Education Sector" Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

special needs and already offer practical courses. The names of the schools, and how this pilot will be monitored and evaluated has also yet to be released.

While in the short term the occupational stream is only going to be introduced at special schools with workshops “due to resource restrictions”, it is not intended to remain an option only for special needs education.⁴ DBE projections predict 228 schools being equipped to offer vocational or occupational subjects in 2016, following which the number doubles each year until it reaches the quite astonishing amount of 14 592 schools by 2022: giving 60% of learners access to technical education (it is unclear whether this includes vocational as well as occupational streams).

The exponentially increasing rate of provision offers cause for doubt; it also clearly implies that this initiative will not simply be based on new schools being built, but will rather convert academic schools by adding workshops to them. It is not clear whether this will be a total conversion or whether it will allow the schools to continue offering academic streams.

There is also a more modest projection, although still ambitious: in order to meet the demand for special needs education, “the number of schools that are equipped to offer Vocational Subjects should grow to at least 1 824 in 2022.”⁵ The gulf between these two figures indicates significant room for policy variance.

The policy amendments below (Section 1.2) indicate the only policy changes that have been published in the Government Gazette to date. A senior official at the DBE stated that the third stream (technical occupational) has not yet been published and hence, there are as yet no official documents outlining this curriculum (despite the public announcements specifying subjects in the occupational curriculum).⁶ However, it will have Umalusi accreditation.

A later presentation by the DBE revealed that work has been ongoing on the occupational stream project since October 2013. There is now a draft qualification, and the 26 subjects are also at draft stage. They will be finalised and are projected to be published for public comment towards the end of the year (2016), and will be piloted in 2017.

Thereafter, it will be incrementally implemented over four to five years. In so doing, the plan is at first to realign and reform programmes existing currently. The DBE is currently working on recapitalisation plans for upgrading technical high schools (and building new ones). For example, the eight new high schools to be built in Gauteng will all be technical high schools. Earlier claims that 60% of learners are eventually expected to study in one of the technical streams offers reason to doubt whether the three stream system will genuinely only affect technical schools and not also involve the conversion of academic schools.

The relation of technical schools to TVET (formerly FET) colleges is unclear. It seems, however, that the system will not involve turning over control of the TVET Colleges to the DBE (currently they are run by the Department of Higher Education and Training). It is possible that technical vocational schools will prepare learners for further study at TVET colleges, if they do not go straight into the workplace. TVET colleges currently have courses from the equivalent of grade 10 level, so they may run in parallel with technical schools.

⁴ “The Introduction Of A Three Stream Model Into The Basic Education Sector” Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

⁵ “The Introduction Of A Three Stream Model Into The Basic Education Sector” Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

⁶ Interviewee prefers to remain anonymous

1.2 Recent related policy amendments

Two sets of policy documents related to the proposed system have been amended, and those amendments were published in the Government Gazette on 20 November 2015.

They are the *National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R-12* and the *National Policy pertaining to the conduct, administration and management of the National Senior Certificate Examination*. However, these amendments make reference to only *two* curriculum streams.

The amendments are listed under the sub-heading (4A) STUDY PATHWAYS FOR GRADES 10-12 and state that:

(1) Learners entering the FET Phase must follow *one of the following two pathways*, namely *Academic (General) or Technical Pathway*.

(2) Learners in the Academic (General) Pathway must follow the curriculum as contemplated in sub-regulations (4A)(a), (4A)(b), (4A)(b)(iA), (4A)(b)(ii), (4A)(cA)

(3) Learners Following the Technical Pathway must follow the curriculum as contemplated in sub-regulations (4A)(a), (4A)(b), (4A)(b)(iA), (4A)(b)(ii), (4A)(c)(ii) and (4A)(cA).

(4) To qualify for the technical pathway a learner *must be enrolled at a technical school approved and registered by the relevant Provincial Education Department*.

According to current information published in the government Gazette on the so-called **technical pathway** (which may constitute the **second stream**) learners will take one of the following three technology subjects to specialise in:

(aaa) Civil Technology

(bbb) Electrical Technology

(ccc) Mechanical Technology

In addition, learners in this stream will take **(bb) Engineering Graphics and Design** and **(cc) Physical Sciences or Technological Science**.

Technical Schools already exist, so the policy amendments are not particularly revealing as to the direction that the new system will take, although they do give credence to the claim by the DBE official that the third stream has not yet been finalised. Thus far the paper trail could be interpreted equally as a minor reorganisation or the major reform we have been led to expect. Greater understanding of the plans waits on further documentation.

1.3 Rationale

Currently, 40% to 50% of learners leave the education system before reaching matric. As a result, the cohort matric pass rate is around 40%, which means about 60% of learners are currently never completing their “academic” education.⁷ The DBE made explicit reference to this in their announcement, claiming that this was because the dropouts were not ‘academically inclined’. They argue that streaming learners will keep them in school by better matching their abilities to their curriculum.

The new system is intended as an economic programme which creates growth and cuts unemployment. By investing in technical education, learners will increase their ‘employability’ when it comes to finding a job after leaving school. And, in the case where no jobs materialise, their skills (particularly in the technical occupational stream) will enable them to become entrepreneurs and employ themselves.

This is premised on a belief in a technical skills shortage in South Africa, which is said to decrease domestic production, and ultimately lower the GDP. A programme that plans to hone skilled technical training could effectively address this.

Moreover, the unemployment rate for those with a highest qualification of matric is 34%, not much better than the 42% unemployment rate for those without matric.⁸ Further, only about 12% of South Africans receive tertiary university degrees. This suggests that simply completing a general matric is often not a gateway to further opportunities. The DBE has argued that additional streams, which prepare people for a wider variety of employment, would have benefits both at the level of the individual as well as the South African economy.

A later presentation by the DBE raised the issue of inclusive education: that learners with special needs and intellectual disabilities are not yet adequately accommodated through “appropriate curriculum differentiation”.⁹ If it is successfully implemented, a diversified curriculum might increase social equality by catering to a wider range of aptitudes. It could offer incentives to lower achievers in school to work hard and develop their skills, thus improving social equality.

However, considering the fact that SA’s society is so highly divided along race and class lines, this is not the most immediately likely outcome. Ostensibly, technical-type jobs will only gain the requisite respect when they are similarly financially compensated to other employment, and offer stable employment, allowing for upward social mobility. Nonetheless in some cases this has been achieved. For example, technical and vocational education and training (TVET) was made a priority in ‘Asian Tigers’ (fast-growing economies such as Singapore and South Korea) and used as a means through which young people would be equipped with the requisite skills for working in one of the industries prioritised by the state.

This rationale needs to be investigated rigorously. Learners with special needs are clearly not the only ones going to be affected or included in technical streams. The idea that learners who drop out do so because of a lack of academic inclination is problematic. A great deal of drop outs have social determinants. Underlying issues in the general education system which shape this will be dealt with

⁷ <http://www.groundup.org.za/article/what-do-matric-results-mean/>

⁸ <http://www.statssa.gov.za/presentation/Stats%20SA%20presentation%20on%20skills%20and%20unemployment16%20September.pdf>

⁹ “The Introduction Of A Three Stream Model Into The Basic Education Sector” Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

in Section 6, *Weak Foundations*. The claims of economic benefits flowing from this reform also need to be critically assessed. This will be done in Section 4.

2. Technical education in South Africa

2.1 Technical education under Apartheid

Apartheid depended in large part on a system of cheap labour. Skills production overall was thus intentionally low. The skills development structures which did exist were highly racialised: there was artisan training for white men, which was run through the state-owned enterprises and technical colleges, which had dedicated industrial training facilities.¹⁰ This was separated from the mainstream education system and had a relatively low status. Artisans were often lower achievers, academically, and some had not completed their Senior Certificate/Matric. The technical colleges offered these learners a chance to acquire a qualification and with some additional courses, this could become a Matric, at 'standard grade' level.¹¹

The technical colleges (or technikons) taught the theoretical aspects of apprenticeships. This was in the form of three month blocks, with the remaining nine months of the year being spent in a work placement. The curriculum and exams were both nationally prescribed. Having passed the exams and completed the work experience, learners would sit a trade test, following which they would become a qualified artisan.¹²

During the 1980s the apartheid state began to reform. The economic downturn and global trends towards neoliberalism encouraged the government to support greater privatisation, and less government interference in the free market. In line with this, the skills development structures were reformed. A key part of this was moving towards more market-led skills formation. "Industry Training Boards were established in all industries, and given control over administration and certification of training."¹³ These moved away from time-based courses and towards employer-specified competence-based modules. This reform foreshadows post-1994 skills policy.

¹⁰ Allais, S., "Will skills save us? Rethinking the relationships between vocational education, skills development policies, and social policy in South Africa." *International Journal of Education Development* (2012), p2

¹¹ Allais, S. "Understanding the persistence of low levels of skills in South Africa", *New South African Review*, 3 (2013), p203

¹² Allais, 2012, p2

¹³ Allais, 2012, p2

2.2 The current state of technical education in South Africa

2.2.1 Timeline of the government's attempts to transform the FET/ TVET sector:

- 1994: Education and Training is split between the Ministry of Labour (responsible for 'skills development') and the Ministry of Education (responsible for schools, adult education, colleges and universities).
- 1995: The National Qualifications Framework is established, whose requirements all qualifications in the country had to meet.
- 1997: The Department of Labour introduces the National Skills Development Strategy. In terms of this, Sectoral Education and Training Authorities (SETAs) and a National Skills Fund are set up, as well as a skills levy on business. Apprenticeships are to be phased out, in favour of 'learnerships'.
- 1998: The Further Education and Training Act allows for technical colleges to become FET colleges, under provincial authority.¹⁴
- 2001: *A New Educational Landscape* recommends the establishment of 50 public FET colleges out of a merger of 152 former technical colleges to pool resources and overcome historical inequalities.
- 2006: The FET Colleges Act is passed. It envisions a 'modern, vibrant FET college system'. It also introduces a decentralised governance structure with independent college councils.
- 2007: The National Certificate (Vocational) is introduced in FET colleges, at NQF levels 2-4 (equivalent to grades 10-12). These replace their equivalent 'N' courses, the old theoretical components of apprenticeships.
- 2008: The *National Plan for Further Education and Training Colleges in South Africa* is published. It seeks to rebrand the colleges as institutions of choice. The aims are to increase participation in the colleges to 1 million enrolled by 2014 and build links with industry to support opportunities for work experience.
- 2009: The Zuma Administration creates several new government departments, such as the integrated post-school Department of Higher Education and Training (DHET). Having been administered at the provincial level since 1994, **FET colleges shift to national jurisdiction**. The structure and quality assurance of the NQF is also completely changed.
- 2010: Government reintroduces the apprenticeship system (never formally abandoned) and the accompanying 'N' courses, just three years after rolling out their replacements, the NCV courses.
- 2011: The DHET signals its intention to bring the SETAs under greater central control, and to direct skills levy funding to formal public institutions. State-owned enterprises commit themselves to taking on apprentices again.
- 2012: The *Green paper for Post-School Education and Training*, which set new targets to be reached by 2030 i.e double university enrolment to 1.5 million as well as increase enrolment in colleges to 4 million.

2.2.2 The NQF

In 1995 Government introduced the National Qualifications Framework (NQF) to replace all existing qualifications in the country. Relevant stakeholders (such as employers and unions) helped to design the new qualifications for vocational training. They would define the learning outcomes or

¹⁴ 'Further Education and Training Act' No. 98 of 1998, *Government Gazette*, 2 November 1998

‘competences’ that workers were expected to have, which would then be registered as qualifications and unit standards (modules or courses which could make up part of a qualification).¹⁵ Many new sets of vocational qualifications were created this way.

All education levels in South Africa are graded according to the NQF, which runs on a scale of 1-10. NQF levels 1-4 constitutes high school grades 9-12 OR training for an equivalent vocational certificate in technical colleges. Levels 5-7 are diploma qualifications and higher technical qualifications from colleges and levels 7-10 are university degrees. However, qualifications have not been equally affected by the demands of the NQF. The curricula of most established education and training institutes – such as universities (quality assured by the Higher Education Quality Council) and basic education (quality assured by Umalusi) – did not fit well into the NQF and were changed in only a superficial manner to meet its demands. On the other hand, the skills development and vocational training areas (such as the SETAs and FET/TVET colleges – discussed in Section 2.2.3 and Section 2.2.4 respectively) were far more vulnerable to substantive changes, as they did not have a strong and defined knowledge base in the same way that universities, or even schools, did.

Thus vocational training has been shaped by the NQF, and bears many of its flaws, in ways that universities and schools have not. For example, many of the courses FET/TVET colleges teach in the post-apartheid era are brand-new and without precedent in their institutional history. Quite apart from the institutional and administrative changes this required, this offered a blank slate for the new model.

While the NQF was designed to be responsive to the demands of employers and increase the range of choice while still forming part of a nationally recognized qualification, it has proved highly problematic. Stephanie Allais argues that Qualifications Frameworks (such as the NQF) were born out of market-oriented reforms in the UK and now form part of a ‘toolkit’ for remodelling vocational training in the developing world.¹⁶ The employer-led model has proved extremely limited, for a number of reasons.

First, it tends to work on a narrow understanding of the skills required for a job as merely the completion of tasks: the immediate job at hand rather than any broader occupational understanding, or abilities of evaluation and co-ordination.¹⁷ This separates skills from their theoretical knowledge base in ways which are often inappropriate. Moreover, it splits up a work process into numerous small tasks; these then inform different learning outcomes to be covered in the curriculum.

The NQF is modelled as a ‘market of qualifications’, from which individuals can choose courses to tailor their own skills profiles and improve their ‘employability’.¹⁸ Modularised courses with task-based learning outcomes means that learners or students are liable to acquire skills which are generally independent of each other, and often disconnected from real work contexts or a clear occupational identity. This can be contrasted to skills development where there *is* an occupational identity, as could be expressed through statements such as ‘I am a mechanic’; ‘I am training to become a carpenter’: professions which have charters, a defined knowledge base, controlled entry into the profession, and longstanding qualifications. This ‘market of qualifications’ approach will be assessed as part of a broader economic policy in Section 4.

The result of this has been a massive proliferation of qualifications and modules to choose from. 787 qualifications have been developed, and over 10 000 unit standards have been created. Few of these have been provided or subscribed to though: as of 2007, only 172 qualifications based on unit standards and 2 211 unit standards (course modules) had actually been awarded.¹⁹

¹⁵ Allais, 2012, p2

¹⁶ Allais, 2012, p1

¹⁷ Allais, 2012, p4

¹⁸ Allais, 2012, p5

¹⁹ Allais, 2013, p205

Moreover, the courses are often hopelessly overspecified and low-level. Allais describes one such case:

Consider, for example, one of the many very low-level unit standards which were developed, this one for workers at check-out counters in shops. The unit standard is titled: 'Pack customer purchases at point of sales', and contains the following three specific outcomes:

*Explain factors impacting on the packing of customer purchases.
The importance of packing customer parcels correctly is explained.
Pack customer purchases.*

A worker who is perfectly competent in packing groceries, and has been doing so for years, may well not be found competent against these outcomes. Further, being found competent against them will not assist them in anyway—they will not be able to do anything other than continue to pack groceries.²⁰

Despite competencies being employer-specified, these qualifications have very little currency in the labour market and do not open up a world of employment opportunities. While this is partly due to the state of the economy, the model of modular qualifications is liable to this problem and is distinct from training for a specific occupation with a well-developed knowledge base. The narrow skills approach does not encompass everything required for job-readiness, especially when it means separation from an institution or learning programme which will help to develop this. And, as will be shown, the service provision itself is also extremely weak.

2.2.3 SETAs

As part of the Department of Labour's Skills Development Strategy, Sectoral Education and Training Authorities (SETAs) were set up in 1997. These were foreshadowed by the late-era Apartheid Industry Training Boards, described earlier. There are different SETAs for different industries, and they are made up of stakeholders, including employers and trade unions.²¹ Funding comes from a 'levy-grant' system. Employers pay one percent of their total wages as a skills levy. Of this money, 20% goes to a National Skills Fund to aid skills training for disadvantaged groups (such as the unemployed). 80% of the money goes to the SETA. If employers submit training plans and reports they will receive some of this money back, while some is spent on discretionary projects in the sector.²²

This was designed to reduce 'skills gaps' by giving employers incentives to train, or support the training of, their workers. Stakeholders in each SETA outlined the competences or learning outcomes that workers in that sector were expected to have. These would then be registered as modules making up a qualification under the NQF, without any set curricula. The system was thus designed to be very much demand-led. It has been marked by all the flaws described earlier.

However, the SETAs themselves do not run training programmes. Rather, they preside over a regulated market of service providers, who are required to be accredited. These may be colleges or universities, but also include private service providers, who run training for companies and claim funds from the SETA in return, through what is essentially a voucher system.

The incentives inherent to a market have not led to high quality skills training. Rather, there has been an oversupply of easy-to-provide, 'shallow' skills (such as generic computer skills) and a lack of much-

²⁰ Allais, 2012, p6

²¹ Allais, 2012, p2

²² Allais, 2012, p2

needed technical skills. In an interview, Industrial Development Policy and Strategy Advisor at the Department of Trade and Industry, Nimrod Zalk, identified one of the issues in relation to training in the manufacturing sector as being the expensive equipment required to learn on.

*'Unless they are very large companies, individual manufacturers cannot afford to purchase machinery purely for their own training purposes. For this reason and because they cannot compel staff they have trained to remain with a single company, individual manufacturing firms will tend to undertrain. Thus in many countries like Germany and Malaysia specialised skills training centres are established to service manufacturers who operate in the same industry and area. These training centres install the equipment used in the industry and develop dedicated curricula to serve the needs of nearby firms by providing the "hard" skills manufacturers need. However, to some extent the SETA system has encouraged a "supply-driven" industry where profit-oriented service providers tend to provide a proliferation of "soft" skills and sell them to companies on the basis of recovering their SETA levies. What is required are training centres that are very responsive to the demands of manufacturing and socialise the cost of the specialised training required.'*²³

The DHET indicated in 2011 that it intended to bring the SETAs under greater central control and put the funds from the skills levy into public institutions, but this has not yet happened.

2.2.4 FET/TVET Colleges

Under Apartheid, the technical colleges were the site of theoretical training for apprenticeships. Lecturers taught three month courses to complement nine month long work placements. Post-Apartheid, the Department of Labour announced that it was terminating the apprenticeship programme (although this never formally happened). The Department of Education stepped in with a new curriculum and qualification for the technical colleges to teach: the National Certificate (Vocational).²⁴

The colleges became known as FET (Further Education and Training) Colleges, and are now called TVET (Technical and Vocational Education and Training Colleges). These offer vocational post-school studies (NQF level 5-7) as well as a vocational alternative for school learners from grade 10-12 level (NQF 2-4) – effectively an additional stream to the education system, albeit one run by the DHET since 2009.

The NCV aimed to expand vocational training, making it broader and more substantial than the apprenticeship model, the theory component of which was known as the 'N'/NATED/Report 191 courses. This older form was said to be based on narrow, trade training models. Instead the government wanted to focus on "general vocational programmes, which supported the development of vocational skills with a sufficient breadth of knowledge and a strong general education foundation".²⁵

As noted earlier, the new courses the colleges had to teach were without precedent, and required full years of institutional study rather than the three months of the 'N' courses. The institutions were weak, and struggled to adapt.²⁶ Many lecturers were ill prepared for the demanding changes: they were often unfamiliar with the broader curriculum, having taught under the apprenticeship model, or

²³ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

²⁴ Allais, 2012. P2

²⁵ DOE. 2008. National Plan for Further Education and Training Colleges in South Africa. Government Gazette. Number 31712, 12 December

²⁶ Allais, 2013. P213

lacked pedagogical expertise, having themselves only acquired technical qualifications. As a result, the quality of teaching and the reliability of assessment has often been poor.

Paradoxically, the curriculum itself is challenging. The broader focus – including theoretical components and some general education – requires more from students. Even though the focus is on vocational skills training, poor foundation phase, primary school and early high school education is not preparing children for success in academic or technical vocational fields. The combination of poor teaching and challenging courses result in many students not progressing to the next year of study. There is a 32% completion rate for NCV level 3 (the second year of the course).²⁷

But even when one looks only at *graduates* of TVET colleges, there are high rates of unemployment. Because of their low market value, the NCV courses are not popular choices: most learners choose to stay in the general education stream if they can.

Meanwhile, there has been nostalgia for the old apprenticeship-based system, and the corresponding 'N' courses. In an attempt to appease industry, government reintroduced them in 2009.²⁸ However, there has not been much political will behind the decision: 'N' courses are not funded by the state and students cannot get NSFAS loans to cover their fees. Rather, students who do these courses are either apprentices whose costs are covered by the employer, or are privately funded.²⁹ However, state-owned enterprises have now also committed to taking in apprentices again. More broadly, there has been some recognition of the failures of the technical education system, and policy moves to address this; it remains to be seen whether these will be implemented.³⁰

²⁷ Andre Kraak, 2014. "State Policy Failure in Overcoming Low Employer Demand for Skills in South Africa" in *Transformation Audit. Breaking the Mold: prospects for Radical socio-economic transformation in South Africa*.

²⁸ <http://mg.co.za/article/2009-12-04-outdated-technical-courses-to-return>

²⁹ Andre Kraak, 2014. "State Policy Failure in Overcoming Low Employer Demand for Skills in South Africa" in *Transformation Audit. Breaking the Mold: prospects for Radical socio-economic transformation in South Africa*.

³⁰ Allais, 2013. P214

2.3 Relevance to three stream system

The government has indicated that in the technical vocational stream, there will be three core curricula, each based around one type of engineering.³¹ This is not a case where learners will choose from a market of qualifications. However, this NQF model still represents a danger for the three stream system, and it seems like something the technical occupational stream will be particularly vulnerable to. The reports of 26 subjects to choose from including hairdressing, spraypainting and panelbeating could well form a fragmented curriculum that does not necessarily prepare learners for greater employment opportunities.

The SETAs are a key part of the current system of skills formation, but it needs to be stressed that the three stream system is unlikely to become exactly like them. The new system is to be implemented in schools: unlike the SETA service providers, these are public institutions. They are thus not subject to the low quality issues that market-driven provision has led to (although they may well have their own reasons for low quality).

Media reports do, however, indicate that the three streams will interact with and depend upon the SETAs for workplace experience.³² If this is the case, the failures of the SETAs will become very relevant to the implementation of the new system.

The TVET colleges offer a better analogy: these are institutions which were too weak to adapt to a new technical curriculum, whose lecturers were unprepared and ill-trained for the changes, and whose graduates have consequently experienced little or no improvement of their 'employability'. The new technical schools are likely to face all of these obstacles. In addition, the low completion rates of NCV courses at TVET colleges are a clear indication that simply routing learners into a technical stream is not going to solve high dropout rates: learning deficits inherited from earlier education will be obstacles to technical education just as much as they are to general education.

It should be noted that TVET colleges already offer a technical stream of education from the equivalent of grade 10 and up. The new system seems set to duplicate this, rather than engage with it. This would compound existing overlaps in qualification levels at different institutions of learning. For example, a learner may complete matric (NQF level 4) and then enter a TVET college at NQF level 2. This means that students have to repeat certain levels of training, in what seems like a waste of time and resources. Occurrences like these are due to poor planning and coordination between departments of education.

Kraak blames high unemployment rates for TVET graduates on a 'supply-led' reform, that is, when curricula are designed without consulting with industry or relevant employers in terms of the actual skills that are required, and so students leave the system without improved job opportunities.³³

We should be cautious, however, in giving too much say to employers: a demand-led system may be useless if the demand is for cheap, unskilled labour. There is also the example of the SETAs, where employers have been able to specify the skills they require, and these specifications have formed the basis of qualifications under the NQF. As discussed earlier, this has not been successful in creating strong or useful curricula for the SETAs.

Nonetheless, it is certainly problematic that NCV courses do not involve work placements for part of the year, and ideally training institutes should have close relationships with employers in terms of

³¹ <http://www.news24.com/SouthAfrica/News/new-school-system-planned-for-2017-report-20160110>

³² <http://www.iol.co.za/news/south-africa/kwazulu-natal/new-education-plan-for-2017-1992008>

³³ Andre Kraak, 2014. "State Policy Failure in Overcoming Low Employer Demand for Skills in South Africa" in *Transformation Audit. Breaking the Mold: prospects for Radical socio-economic transformation in South Africa.*, 47.

occupational placements for graduates. This could also occur through greater state intervention, by directing the development of specific industries and planning TVET training to meet these needs.

Skills formation cannot be understood purely in terms of its internal dynamics, since its value comes from its links to the labour market. In the wrong economic conditions, skills development becomes extremely unlikely; this will be discussed further in Section 3.4.1 and Section 4.5.

3. Case Studies

3.1 Germany

Schooling is compulsory from age 6 until age 15, and is free (as is University). As early as age 10, pupils are split into one of three tracks:

- *Hauptschule*: Training for manual labour and blue collar professions, trades
- *Realschule*: Education for administrative and lower white-collar jobs
- *Gymnasium*: Higher academic education and direct university access. (This track lasts 3 years longer than the others)³⁴

Recommendations are made by teachers but generally the final choice is the parents. Once allocated, there is not a great deal of inter-track switching, with only about 10% changing track (generally to a lower one).³⁵

Germany has very low youth unemployment rates - 7,7% in 2014.³⁶ The percentage of 15-24 year olds not in work or training is the lowest in the EU. This suggests that the three tiered model may be leaving German students well prepared for the world of work.

However, in 2001 the first PISA study (which measures educational performance across OECD nations) found that German students are weak in maths, science and reading, and poor literacy lowered their performance across all subjects.³⁷ Since then some reforms have been attempted and Germany's performance has improved somewhat. Nonetheless, as of 2010, Germany had a lower proportion of 30-34 year olds (29,8%) who had completed a university or university-like education than the EU average (of 33,6%)³⁸ and 17.5% of German adults surveyed in PISA 2012 had the reading age of a ten-year-old child.³⁹

The 3 track system exacerbates social inequalities. Ethnic minorities and children from lower socio-economic backgrounds face greater difficulties in accessing top level education and are disproportionately represented among the lowest stream of schooling.⁴⁰ One study found, "Among children with **similar ability levels**, a child whose parents finished upper secondary schooling faces a 15 percent higher chance of placement in the highest track."⁴¹ The PISA study of 2012 found that "in hardly any other country [apart from Germany] does literacy depend so much on your parents' education."⁴²

³⁴<http://ftp.iza.org/dp8545.pdf>

³⁵<http://www.humanityinaction.org/knowledgebase/105-why-not-a-critical-look-at-upward-mobility-within-berlin-s-impermeable-education-system>

³⁶<http://www.dw.com/en/germany-has-lowest-youth-unemployment-in-eu/a-18640125>

³⁷http://www.german-times.com/index.php?option=com_content&task=view&id=3205&Itemid=81

³⁸<http://www.wsj.com/articles/SB10001424052702304066504576341353566196300>

³⁹<http://www.thelocal.de/20131008/52297>

⁴⁰<https://www.opensocietyfoundations.org/voices/hard-look-discrimination-education-germany>

⁴¹<http://ftp.iza.org/dp8545.pdf>

⁴²<http://www.thelocal.de/20131008/52297>

3.2 China

The world's largest economy has long had a reputation for low wage, low skilled labour, although it has also emerged as a technologically advanced, highly capitalised industrial state. A new policy was introduced between 2001 and 2011 to expand vocational education, and over \$21 billion dollars were invested in the programme. During this time, vocational enrolments increased from 11.7 million to 22.1 million pupils. Students choose a 'track' at end of junior high – either academic or vocational (VET).⁴³ This seems to be aimed at addressing the perceived failures of the country's traditional schooling system.⁴⁴

VET is more accessible for rural students and is supposed to promote growth and reduce income asymmetries. However, no studies confirm these claims. It appears that many VET schools are no more than recruiting grounds for factories.

Evidence from China is mixed. Some studies indicate that pupils at VET schools are not actually receiving quality basic education or quality job-specific training. A study of 12 000 students in Shaanxi and Zhejiang Provinces found that compared relation to students at the worst academic high schools, those at VETs had fewer general and specific occupational skills.⁴⁵ Further, these schools seem not to offer much practical training, suffer disciplinary problems, and lack well-qualified teachers.⁴⁶ These findings suggest that vocational schooling can be detrimental to economic growth. However, one cannot rule out selection bias (those in academic schools are predisposed to performing better than those tracked for vocational schools.) Further, one study found "that secondary vocational schools have met government benchmarks for teacher qualification and training, student opportunities for practical training and adequate facilities."⁴⁷

⁴³http://reap.fsi.stanford.edu/research/vocational_education_versus_academic_high_school_a_study_on_relative_value_added

⁴⁴<http://www.3ieimpact.org/en/announcements/2012/04/05/evaluating-vocational-schools-rural-china/>

⁴⁵http://reap.fsi.stanford.edu/research/vocational_education_versus_academic_high_school_a_study_on_relative_value_added

⁴⁶<http://www.3ieimpact.org/en/announcements/2012/04/05/evaluating-vocational-schools-rural-china/>

⁴⁷https://reap.fsi.stanford.edu/sites/default/files/VET_study.pdf

3.3 Multi-country comparison

While no country is a perfect analogue to South Africa, elements of different models can be compared in the table below.

Source: Andre Kraak et al, 24 November 2013. "Review of the current skills development system and recommendations towards the best model for delivering skills in the country". *Human Resources Development Council of South Africa.*, p31

TABLE 1: SOUTH AFRICA AND FOUR 'SKILL SYSTEMS' COUNTRY CASE STUDIES

| | | United Kingdom | Netherlands | Singapore | Brazil | South Africa |
|---------------------------------|---|--|---|--|--|---|
| Wider contextual factors | | | | | | |
| 1 | Macro political economy of country | Liberal market economy | Collective or coordinated market economy | Developmental state (with one-party rule) | State-dependent market economy | State-dependent market economy, with state steering far weaker than in the Brazilian case |
| 2 | Role of state | Minimal role in terms of neo-liberal doctrine, but in reality the state is very 'centrist', imposing qualifications and targets on SSCs without real employer buy-in | Governance based on a wider social compact between government, employers and unions which determine most social services including training | Hugely interventionist in directly linking education and training to industrial policy needs over 5 decades | Primarily a market economy but state has played a strong role in the economy, especially during the military coup era | Primarily a market economy but state has tried to play a greater role through micro-economic reform (lowering of input costs in production) and ramping up investment in public sector infrastructure |
| 3 | Employer role | Has little say over operations and expenditure of SSCs | Employers have a strong say over the SSC system – they occupy the driving seat of the VET system | Large employers have a big say, especially the government-linked companies and MNCs, less so SMEs | Large family-owned Brazilian companies and multinational corporations have big say | Employers alienated, and play a minimal role in the operations of the SETAs |
| Operation of the SSC | | | | | | |
| 4 | Demand-led or supply-side | A supply-side model, made up of FET colleges and a large pool of private providers who offer NVQs | Strong employer input of their skill needs, including the changes in demand which are effectively communicated through to the supply side | Strong demand-side input from MNCs and employers. Also long-term state-led manpower planning determines future skill needs (a strategic supply-side intervention) | A demand-side system – the 'S-system' is run by employers to meet employers' training needs | A supply-side model made up largely of private providers, with significant neglect of the public FET College system |
| 5 | Alignment of system, especially the linkages between colleges, SSCs and employers | Not well-aligned | Strongly aligned | ITE-Polytechnics, universities and continuing VET system very well aligned | Brazilian education and training highly segmented – higher education for the elites has nothing to do with the S-system. Poor articulation | Very poorly aligned |
| 6 | Labour market value of VET qualifications | Little purchase in labour market | High value of VET qualifications | ITE and polytechnic certificates well received in labour market. It has taken 3 decades to improve the labour market worth of vocational certificates | S-system qualifications are respected but no training is offered to the bulk of workers in the informal sector | Little purchase in labour market |
| 7 | Work-experience placements | Not a strong feature of system | All trainees get placements – 200 000 enterprises provide these internships | ITE and polytechnics organise very effective work-experience placements, even internationally | S-system cooperates with employer associations to provide internships and practical work experience | Not a strong feature of system |
| 8 | Employment rates of trainees | Not high | Employment uptake is very high | High uptake of ITE and polytechnic graduates | Good uptake | Low |

3.4 Lessons from other countries

3.4.1 Reinforcing Systems

When comparing 'liberal market' economies (with less regulation of markets and lower government social spending) to 'co-ordinated market' economies (with greater regulation and a larger government role in provision of social goods) amongst rich, democratic countries, it has been found that the greater social protections and equality of more co-ordinated economies had a positive relationship with skills formation.⁴⁸ Specifically, measures such as well-funded public schooling (including preschool, and vocational training) help develop high-level vocational and general skills, while strong collective bargaining, wage protections and government provision of social goods provides incentives for even lower-achieving learners to work hard and get into vocational colleges or apprenticeships, raising the skills levels at the bottom end. Stable, well-paying jobs foster the sustained accumulation of skills over time. Consequently, both general and specific skills are strong in these countries, and income inequality is lower.

By contrast, in liberal market economies there are weaker public education systems, and the middle classes often self-insure by going to private schools, guaranteeing their entrance into university and the top jobs. Vocational education is weaker, and so there is little incentive for lower-achieving students to work hard, especially with fewer protections or opportunities for advancement. Unions are weaker, because in low skills industries workers are easily replaced. Thus,

*workers at the bottom [of co-ordinated economies] have specific skills that the workers at the bottom in liberal market economies do not have, but they also have better general skills. This makes them more able to acquire more technical skills, enabling high value-added production in international niche markets. The high levels of general education also enable these countries to cope with the rise of services.*⁴⁹

This highlights a number of broader social and economic issues which can either constrain or strengthen skills formation, beyond the state of technical education itself. The way South Africa's economy currently shapes skill formation will be investigated in Section 4.5. It is important to note that in this case high levels of technical skills do not require sacrificing general skills but in fact accompany them.

3.4.2 Developmental States

'Developmental states' describe countries which take a more interventionist approach to the economy, and are characterised by extensive planning and regulation thereof. This is an economic and political model that was adopted by the so-called 'Asian Tigers' (Singapore, Taiwan, Hong Kong and South Korea) in the late 20th century. These countries are known for their exceptional growth and rapid industrialisation between the 1960s and 1990s. In these countries, the state identified and supported certain industries that they felt would reap the best returns. As a result, Hong Kong and Singapore became top global financial centres and South Korea and Taiwan became leaders in the development of information technology.⁵⁰

⁴⁸ Allais, 2012. P7

⁴⁹ Allais, 2012. P7

⁵⁰ "[Can Africa really learn from Korea?](#)". Afrol News. 24 November 2008. Retrieved 16 February 2009

While developmental states do not own the majority of the economy, they lead the drive to industrialise by directing investment towards the sectors of choice, as well as intervening in the market through instruments such as subsidies to improve competitiveness, exchange rate controls, and inflation manipulation.⁵¹

Developmental states offer a useful example for skills formation because this occurred as part of a broader state policy for economic growth. Having prioritised specific industries, the Asian Tigers were able to structure technical and vocational training to closely meet the stimulated demands of these industries.

3.4.3 Equality

The evidence from case studies offers useful samples of equity concerns that accompany tiered education systems. While the contexts are very different to South Africa's, they highlight some of the potential pitfalls we should be concerned about.

In Germany, streaming has been described as discriminatory towards ethnic minorities and lower socio-economic classes. Upward mobility seems to be limited, given that the educational stream children end up in depends to a great deal on the education levels of your parents, even when adjusting for children's own academic achievement. Further, the early age at which streaming happens – 10 years old – is shown to exacerbate inequality, as children spend less time in general education and thus have less opportunity to overcome their existing developmental inequalities.⁵² This is particularly problematic when it comes to the way that streaming tends to set the course for one's life – there is very little inter-track mobility, and when it occurs it is almost exclusively a student switching to a lower track rather than a higher one.

In China, there seems to be evidence of geographic inequality, as VET schools are more accessible in rural areas. With question marks hanging over the quality of these schools, it raises the serious issue of learner equality and right to choose. A rural student may struggle to find an academic school in the area, and therefore have no choice but to attend what have been described as recruiting grounds for factories. More generally, if this is indeed the case, the low quality of VET schools will not significantly raise skills at the lower end, leaving income inequality high.

3.4.4 What skills do employers want?

In a review of 24 studies from around the world which surveyed the skills desired by employers, technical skills were not found to be the most desirable skills for workers or even the area where there was the greatest shortage of skills. Researchers grouped skills into four categories: socio-emotional skills (such as teamwork, leadership, trustworthiness, responsibility, honesty and work ethic), basic cognitive skills (basic literacy and numeracy, academic knowledge and comprehension), higher cognitive skills (critical thinking, problem solving, information processing and analysis, adaptation) and technical skills (specific knowledge of how to carry out an occupation). Of the skills ranked as most important across all studies, more than 50% were socio-emotional skills, 29,7% were higher-order cognitive, and 12,7% were technical.⁵³ Socio-emotional skills were ranked as the most important in

⁵¹ Leftwich, Adrian, "The Developmental State", Working Paper No. 6, University of York, 1994

⁵² <http://www.wsj.com/articles/SB10001424052702304066504576341353566196300>

⁵³ Cunningham and Villasenor, p110

almost all countries studied. Although the specific skills named by employers varied, the general pattern was consistent:

The aggregate patterns hold up when dividing the sample by region, industry (manufacturing v. service firms), occupation (managers v. workers), and education level of the workforce; socio-emotional and higher-order cognitive skills emerge most strongly for each sub-group.⁵⁴

This is a serious warning for the three stream system: technical training is not the same thing as job-readiness. Many of the skills employers thought of as contributing to the job-readiness of a worker could be classified as socio-emotional or higher cognitive. This suggests that a narrow focus on giving learners technical skills will not necessarily make them more attractive in the job market, nor allow them to meet the needs of employers. In fact, more and more jobs require analysis, problem-solving and teamwork rather than repetition of routine tasks.

This should not be taken to mean that technical skills are unimportant. As Zalk comments, “You can’t have a boilermaker who has wonderful people skills but doesn’t know how to make a boiler.”⁵⁵ On this front, it is possible that technical skills were undervalued in the studies, which surveyed employer responses but not actual hiring practices.

However, these technical skills should be learned at the appropriate stage in a child’s development, as part of a broad package of skills. The best results in technical education globally have been achieved in experience-based learning, or a mix of experience and some theoretical work, rather than an exclusively classroom-based model – although in a supportive environment that helps to develop all four groups of skills.⁵⁶

Socio-emotional and higher-order cognitive skills are largely developed in teenage years, which suggests strongly that learners should be kept in a general academic stream where they can develop these until at least some way through high school.

This balance of skills would make inter-track switching (an important concern relating to the equity of streaming) more viable. Opportunities for later learning should also be made available to technical streams to allow them to adapt to changes in the economy and to lessen the extent to which streaming sets the course of one’s life on an unchangeable path.

⁵⁴ Cunningham and Villasenor, p125

⁵⁵ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

⁵⁶ Cunningham and Villasenor, p124

4. Economic Discussion

4.1 Framework

When the announcement of the new three stream system was made, it was described as a step towards the National Development Plan's requirements of producing 30 000 skilled artisans a year by 2030.⁵⁷ As well as educational reform, it is being presented as an economic programme that will lead to growth, job creation and greater entrepreneurship. This is in line with a global financial regime which gives preference to anti-poverty measures such as improved provision of housing, nutrition and education rather than state policies to create large-scale employment. It forms part of the neoliberal consensus, which embraces minimal state interference in the economy, deregulation and free trade, privatisation of public assets and fiscal austerity (government not spending more money than it receives). Between 1981 and 2005, during which this approach has held sway, poverty in most developing countries did not decline (particularly in Africa), and job growth stagnated.⁵⁸

Part of the focus on vocational skills is explained by the widespread assumption that there is a shortage of skills, which is thought to be one of the main causes of unemployment and a factor holding economic growth back. At a roundtable held on the new system in December 2015, Minister Motshekga related a story where Higher Education Minister Blade Nzimande was apparently told by the motor industry that "there is a shortage of 10 000 motor mechanics".⁵⁹ While there are elements of truth to this, the idea of a skills gap is highly contested. It is part of the same free market logic which informs less state intervention in the economy to create jobs, and, it will be argued, misframes the issue. This will be discussed in detail later.

These reforms are designed to improve students' 'employability', with the idea being that training in occupational or vocational skills will help you to start your own business or better meet the needs of industry. While being able to start your own business is surely a positive (although as noted later, skills are hardly the only requirement for this), when this is taken as a policy proposal it fits into the neoliberal reasoning mentioned above, where the poor are seen as responsible for changing their own position in the economy. Meanwhile, government responsibility to distribute wealth more fairly or create jobs is obscured. As the Industrial Development Policy and Strategy Advisor at the Department of Trade and Industry, commented: "There is a tendency to make a cult of entrepreneurship, which is not adequately evidence-based. It implies that we have given up on the idea of full employment and that people must take responsibility for themselves by starting up their own micro-enterprises."⁶⁰

4.2 Does Education Create Jobs?

Changing education is a supply-side intervention: developing a more skilled population does not create a demand for their labour. Crucially, if there is already high unemployment, acquiring greater

⁵⁷ <http://www.news24.com/SouthAfrica/News/new-school-system-planned-for-2017-report-20160110>

⁵⁸ Amsden, Alice H.(2010) 'Say's Law, Poverty Persistence, and Employment Neglect', *Journal of Human Development and Capabilities*, 11: 1, p58

⁵⁹ <http://www.gov.za/speeches/minister-angie-motshekga-technology-and-technical-subjects-round-table-discussion-4-dec>

⁶⁰ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

skills “may create more perturbed unemployed job-seekers, rather than more plentiful jobs.”⁶¹ Even skills which allow people to start their own businesses will not necessarily allow them to grow these into something more than subsistence-level enterprises; this requires investment and financial management.

*With slow-growing demand for new job seekers, further investments in skills may simply force people to ‘hire’ themselves at starvation wages, as in many micro-enterprises. If more money is poured into tertiary education, graduates are likely to add to the educated unemployed or to migrate abroad.*⁶²

This should not be misrepresented to undermine the importance of education. Rather, it shows that educational improvements should not obscure discussions about what will create jobs on a large scale. Better education must go hand-in-hand with measures which actually create demand for labour, along the lines of state job creation, development of infrastructure, serious industrial policy, good borrowing rates and greater capital investment in enterprises.

Education reform, therefore, is not on its own an effective industrial policy. This of course applies to all education reform, not simply the three stream system. However, the broader point is that the effect of skills on growth and industrialisation is weaker than commonly thought, and mediated by a number of other factors. Moreover, this critique is particularly relevant to the three stream system because so much of the justification offered for it centres on the production of technical skills which will apparently give graduates work-readiness and meet the needs of industry, while we now know this relationship to be much more complicated. A traditional ‘general’ education holds comparatively more non-instrumental value than a technical education, and so cannot be as easily described primarily as an economic programme.

4.3 Is there a technical skills gap?

The new system also needs to be evaluated in terms of the specific skills it plans to give learners. It assumes that technical skills are what are most needed, as 60% of learners are expected to be streamed into technical schools of the vocational or occupational variety. The focus on technical skills is a global trend, with the argument made that education has become too separated from the demands of employment.

It is true that educators and employers often have substantially different ideas about what is needed in the labour market. Interviews of nearly 3000 employers and 1000 education providers in nine countries showed that 42% of employers believe that graduates are prepared for the labour market as compared to 72% of educators.⁶³

This disconnect is echoed in South Africa. There is a perception that technical education has failed to work closely with industries, and as a result offers an example of supply-led training that produces graduates with few of the meaningful skills demanded by employers.⁶⁴

⁶¹ Amsden, p60

⁶² Amsden, p60

⁶³ Cunningham, Wendy and Villasenor, Paula. ‘Employer Voices, Employer Demands, and Implications for Public Skills Development Policy Connecting the Labor and Education Sectors’, *The World Bank Research Observer*, 31:1 (2016) p103

⁶⁴ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

*Standards of training for artisans and other mid-level skills are low, as are the numbers enrolled in vocational and occupational education programmes. The quality of provision is erratic, and throughput rates of the colleges are at a low level. The institutions set up through the levy-grant system, the sectoral education and training authorities (Setas) and the National Skills Fund (NSF), have been much criticised.*⁶⁵

These are telling criticisms. While the failure of the existing system is a good reason for reform, it also provides us with a framework to assess the new plans.

4.3.1 Capacity Utilisation

In the South African context, there are clearly deep problems with the skills acquired through technical education, and industry would undoubtedly benefit from having a more effective system. However, the indicators around a 'skills gap' are not quite as clear as they are reported to be.

While there is very little empirical data, one indicator is Statistics SA's quarterly measure of the utilisation of production capacity by large enterprises in the Manufacturing sector. This represents how much they produce as a percentage of the maximum they could be producing. In November 2015, for example, Manufacturing firms produced at 81,8% of their capacity.⁶⁶ Of the remaining 18,2% of production capacity, 11,2% was not used because of insufficient demand, 1,8% was due to a shortage of raw materials, and 1,1% was due to a shortage of labour.⁶⁷ These proportions are consistent with older editions of the reports examined.⁶⁸

If skills were more of an obstacle, one would expect shortages of labour to be a larger cause for under-utilised capacity. Of course, this is not the whole picture, because employed workers could plausibly be lacking in some skills. Better skills would allow for greater efficiency and therefore lower prices, which means demand could increase. But while the two are linked, skills do not seem to be the primary constraint on production. They may become the primary constraint if demand and production increase.

4.3.2 What skills do we need in order to develop?

As mentioned in Section 3.4.4, on lessons from international experience, studies of global employer preferences have not found that technical skills were the most desired in the workplace. Rather, of the skills ranked as most important across all studies, more than 50% were socio-emotional skills, 29,7% were higher-order cognitive, and 12,7% were technical.⁶⁹ Socio-emotional skills were ranked as the most important in almost all countries studied.

While the study did not cover South Africa, it nonetheless holds some implications for South Africa. There is the general point made earlier, that many of the skills employers thought of as contributing

⁶⁵ Allais, Stephanie. "Understanding the persistence of low levels of skills in South Africa", *New South African Review*, 3 (2013). p201

⁶⁶ Statistics South Africa, "Manufacturing: Utilisation of production capacity by large enterprises (Preliminary): November 2015" February 2016

⁶⁷ 4,1% was attributed to 'other' reasons.

⁶⁸ Statistics South Africa, "Manufacturing: Utilisation of production capacity by large enterprises (Preliminary)" February 2015, May 2015, August 2015.

⁶⁹ Cunningham and Villasenor, p110

to the job-readiness of a worker could be classified as socio-emotional or higher cognitive. This suggests that a narrow focus on giving learners technical skills will not necessarily make them more attractive in the job market, nor allow them to meet the needs of employers. If international experience is to guide us, education should be focusing on a rounded array of skills.

Technical skills are clearly important, and there are definitely low levels of these skills in South Africa. However, there are extremely low levels of general skills as well. The poor quality of South Africa's education system is well known.

Developing countries with strong manufacturing economies tend to have invested heavily in science, engineering and technology (SET) skills.⁷⁰ South Africa's more generalised secondary and tertiary education system is not creating these skills in adequate numbers: weaknesses in science and mathematics, in particular in secondary education, hamper this. The fixing of the general, academic education system is not something that the new system engages with; its failings are likely to hold economic growth back just as much if not more than a lack of technical skills. The problems in education are clearly not limited to the technical levels. In view of this, we should invest in strengthening the quality of *all* education, rather than inappropriately emphasising technical skills.

4.4 Skills as discourse and economic programme

So far the discussion has largely responded to the idea of a skills gap on its own terms – whether there is, or is not, evidence for one. However, the terms in which the argument for a gap in technical skills is made also need to be assessed. The skills gap is a formulation which emphasises the impact of skills on the economy. This should be broadened to understand the impact of the economy on skills and skills formation.

Firstly, one needs to consider the idea of skills, which are themselves contested.

There are two main models of vocational education. One focuses on “the ability to act autonomously and competently within an occupational field.”⁷¹ Here, an occupation is a recognised social category – a carpenter or other artisan for example – a secure position to be held for a long time. Students are expected to gain a holistic understanding of the entire work process they will be participating in, as well as the wider industry. They gain competence in a mixture of practical and theoretical tasks.

However, the language of skills does not, in the main, belong to this model of vocational education. Rather, it comes from a reform movement that started in the UK in the 1980s, and has shaped the model for how to structure vocational education in developing countries.⁷² It is driven by the desire to try to create a closer matching of education to the needs of business, and also fits in with the ‘responsibilising’ approach to poverty and economic growth discussed earlier. This has been discussed in Section 2.2 with reference to how it has shaped existing vocational education structures in South Africa.

Youth (and workers) are expected to choose individual courses from a vast framework (rather than a defined curriculum), separate from each other and in many cases separate from a real-life work

⁷⁰ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

⁷¹ Allais, S., “Will skills save us? Rethinking the relationships between vocational education, skills development policies, and social policy in South Africa.” *International Journal of Education Development* (2012), p4

⁷² Allais, 2012. P1

situation, according to what they think will make them more 'employable'. Within this framework, skills are conceived of as task-based – a narrow approach which splits the work process up into different, almost independent parts: "Intellectual functions (planning, coordinating, evaluating, controlling) are sharply separated from execution."⁷³

As well as inappropriate separation from theoretical knowledge bases, the skills approach does not accommodate either job-readiness, or informality. The basic execution of tasks are plainly not the only requirement to do a job well – higher cognitive skills and socio-emotional skills have been noted as key. Workers in informal employment tend not to be formally recognised as skilled, even when in fact the tasks they complete are difficult and require a great deal of know-how.⁷⁴ Further, the over-emphasis on skills to the exclusion of general education foundations will be shown to increase vulnerability to changes in the economy and set people's lives on unchangeable courses.

This model has already had a great deal of influence in South Africa, in the establishment of the SETAs and a 'market of qualifications' embodied in the National Qualifications Framework (NQF) – with the disastrous results discussed in earlier sections. It is important not to generalise and damn the three stream system based on earlier failures. It is unlikely to be exactly the same, nor will it embody all aspects of this model of vocational training. For instance, the SETAs oversee a (somewhat) regulated market of training service providers, whereas all three streams of the schooling system will be public institutions, whatever their eventual quality. Moreover, at least in the technical vocational stream the government has indicated that there will be three core curricula (although technical occupational stream learners could well face a fragmented, low quality 'market of qualifications'). But the broader point remains, which is that a skills focus represents an individualising approach to job creation, one which is too narrow to institutionalise real occupational readiness and excellence.

4.5 Skills formation in the South African economy

The idea that low levels of technical skills are holding South Africa's economy back also misframes the debate. It posits a one-way relationship where skills shape the economy. In reality, the economy has a massive effect on the way skills formation happens and the kind of skills that get formed.

In the discussion on lessons to be learned from other countries (Section 3.4.1), a comparison was made between 'liberal market' economies (with less regulation of markets and lower government social spending) and 'co-ordinated market' economies (with greater regulation and a larger government role in provision of social goods) amongst rich, democratic countries. It was found that the greater social protections and equality of more co-ordinated economies had a positive relationship with skills formation, which in turn fostered greater social equality.⁷⁵ The promise of stable, well-paying jobs as artisans served as an incentive for lower academic achievers to work hard and develop their skills. Further, these were countries which were more likely to have a strong, well-funded public education system. Thus high levels of technical skills and high levels of general education went hand in hand, rather than being mutually exclusive; this also made workers more adaptable.

However, this reinforcing cycle is far from being present in South Africa. Highly unequal, the economy still depends on cheap labour. A number of industries have collapsed as markets were opened and protections removed, in attempts to gain foreign investment. There is extremely high unemployment.

⁷³ Allais, 2012. P4

⁷⁴ Allais, 2013. p205

⁷⁵ Allais, 2012. P7

An extensive system of social grants keeps many people from absolute starvation, but there are no grants for able bodied people capable of work. Of those who are lucky enough to be employed, many are in the informal sector or engaged in casual work, with almost no wage protections. Even formal employment is insecure, with minimum wages not necessarily enforced. In fact, low-skilled workers' real wages *dropped* between 1995 and 2003.⁷⁶

In this context it is extremely unlikely for high levels of vocational (or other) skills to develop, as (along with generally very poor education) there is simply very little incentive to acquire skills. In a shifting job market there are very few people with the occupational stability to grow their skills over time.

Understanding how the economy shapes opportunities for skills formation adds the dimension of structural inequalities to the discussion. This is not just a better theoretical framework though: it offers a guide to policy. Once again, better education doesn't automatically create jobs. Stephanie Allais expresses it succinctly:

*The first problem with 'skills development' in South Africa is that 'skill' is seen as salvation for poor people, posited as a 'bridge' into a world of formal employment or an enabling factor for self-employment. The problem is that the world of formal employment is tiny, and where employment does exist it often does not lift people out of poverty. This is particularly so for self-employment.*⁷⁷

4.6 Narrow skills, vulnerable workers

The new system proposes streaming learners as early as grade 4. This holds the very real danger of creating a large workforce of people who hold few skills other than the completion of specific technical tasks, who are not able to adapt to changes in the economy and therefore are extremely vulnerable to economic crashes, increasing mechanisation and labour-shedding.

At best, the graduates of this system will be work-ready but vulnerable to economic change. At worst, if the narrow skills approach (to the neglect of any general education) is accompanied by the low-level, fragmented courses that characterise other reforms of this sort (including the SETAs), learners will have both lost the chance to acquire a general education and will not be work-ready, being left instead with shallow, useless skills.

*It is the educational element, in particular the integration of the theoretical knowledge component with practice, which gives a qualification its longer-term value and which can in turn facilitate rather than impede the development of the labour process.*⁷⁸

The technical occupational stream is particularly dangerous in this regard. It is not clear that the number of hairdressers, panelbeaters or spraypainters in the country is limited by how many can be trained – this is not really a supply problem. Rather, this is shaped by demand: factors such as the size of the population, the amount of disposable income they have, and so on, limit the number of people who can actually make a living performing these services. Without a really deep understanding of the skills requirements in each sector, it is possible that this system will simultaneously remove students' career choices and set them up for failure. Zalk comments, "You may be training an army of

⁷⁶ Allais, 2013. P210

⁷⁷ Allais, 2013. P209

⁷⁸ Allais, 2012. P5

hairdressers who can't find work. And if you get these things wrong you've taken away their secondary education."⁷⁹

4.7 Summary of economic discussion

Education is not an economic programme, and it is inappropriate for it to be a substitute for one, primarily because it does not work, and also because it places the responsibility for growth and development on individuals. Greater emphasis on technical education is justified by the idea that this will help learners become more 'employable' or at least able to start their own businesses. But education does not create decent jobs - more skilled people may just feed into the growing unemployed, or work at very low wages. And skills are not going to create entrepreneurs. Investment, demand, business expertise does that.

The formalised world of work as a salvation does not yet exist, and where it does exist, does not always lift people out of poverty. All attempts at skills formation will be constrained by the South African economy, marked by massive unemployment, minimal labour or welfare protections, and high rates of working poor. This militates against the long-term, relatively prosperous occupational trajectories required for high skills development.

What is really needed is a sound industrial policy. While the NDP promises to be that, it is not clear that this has delivered results yet. Ultimately the rationale for the three stream system depends on the idea that supply will create its own demand, which is a fallacy.

Focusing on skills training is sacrificing the non-instrumental aspects of education (the way in which it is a good in itself) for greater instrumental value (that is, the good consequences it brings: economic benefits to the individual or society). But this formula will not always work. This trade-off can be detrimental both to the value of the education in itself, AND fail to bring about economic benefit. It is dangerous in that it can leave learners extremely vulnerable to fluctuations in the economy, mechanisation which sheds jobs, and so on. An especial danger in this situation is that supply of these skills exceeds demand. For instance, it is not clear that our training institutions are holding back the number of practitioners in fields covered by the technical occupational stream - hairdressers, spraypainters and the like. Rather, this is limited by demand. The new graduates of the third stream would be unable to do other jobs if they could not find work, having not had a secondary education.

On the other hand, it is precisely a *general* education which allows people to adapt to changes in the economy and study further. Having all learners with a solid base of general education before they specialise into technical fields is probably better for the economy in the long term.

Occupational preparedness is not a concept that is fully captured by having task-based skills. Soft skills and higher cognitive skills are also extremely important, and highly desired by employers. Our education system should be giving learners a balanced package of skills rather than an overwhelming focus on one or the other type.

⁷⁹ Interview with Nimrod Zalk, Industrial Development Policy and Strategy Advisor, Department of Trade and Industry. Daniel Sher, 12 Feb 2016.

5. Equity

5.1 Race and class

One of Equal Education's (EE) primary concerns with the three stream system is that children will be placed in a particular stream (academic, technical vocational, or technical occupational) not on the basis of their ability, but on the basis of the ability of their schools to provide the sort of high quality foundation phase education that develops their potential – essentially measuring the opportunities learners have had.

International experience shows that tiered education often fails to break down, and even exacerbates, socio-economic inequality. This is because performance is strongly linked to wealth, and parental education levels. So when it comes to being streamed, learners from poor and working class communities tend to be disproportionately represented in technical streams. For this reason, in Germany, streaming has been described as discriminatory towards ethnic minorities and lower socio-economic classes.

South Africa's historic and overlapping social inequalities of race and class suggest that the three stream system will be no different. While the methods of selection for the different streams are not yet publicly known (see a fuller discussion below), assuming that performance in exams is an indicator of how learners will be streamed reveals the problem. In the 2015 Matric results, Quintile One schools (the poorest) achieved a 62% pass rate, compared to 91% for Quintile Five (the wealthiest).⁸⁰ This of course is not primarily an indicator of intellectual ability. Rather, it measures opportunity – did the learner have highly educated parents? Did the learner have enough to eat? Did the learner have safe transport to school every day? Was the school well-resourced? Were the teachers knowledgeable and well trained?

The streaming process will likely place those who have had the most limited opportunities, into the technical occupational and technical vocational streams. Given that the economy is characterised by massive unemployment, widespread casualisation and growing rates of the working poor, the opportunities to get stable jobs as well-paid artisans are rare. These learners will likely remain in the class they were born, evidence of very limited upward mobility. Moreover, once streaming has taken place it will probably be extremely difficult to change stream, especially to be able to cope in the academic stream having been in a technical stream. This means that learners' futures are substantially set by the time they are 11. The loss of a general education counts against their chances of shifting careers, studying further or adapting to changes in the economy. The early age of streaming (grade 4) is also detrimental to equality, as there is less general education to overcome pre-existing developmental deficits.

It is difficult to avoid comparisons of this with Bantu Education. It is true that to some extent this is a formalisation (or re-formalisation) of inequality that already exists. In fact, it seems likely to strengthen and maintain a cheap supply of black labour. This solidifies racist ideology by reinforcing the notion that black people work with their hands and white people work with their heads.

It does not have to work like this. Good vocational education can *compress* the wage gap rather than stretch it. What is needed, however, is a reinforcing cycle of strong general and vocational public

⁸⁰ <http://www.groundup.org.za/article/what-do-matric-results-mean/>

education, wage protections and welfare provisions, and a stable economy where long-term jobs can be had. At the moment, though, none of these preconditions are present.

5.2 Geographic Inequality and Learner Choice

Apartheid has left a deep legacy of spatial inequality. Townships and former homelands remain extremely poor and are often left without basic public services. Schools are no different. Whether it tries to or not, the three stream system will interact with this inequality. Whether new technical stream schools are built, or existing academic schools converted, their location and distribution is a political choice.

Performance in matric results is heavily shaped by socio-economic status. Thus matric results vary greatly by region. In 2015, the Eastern Cape, a poor province containing two former homelands, had a 56,8% pass rate, while the Western Cape, a wealthy province with no former homelands, had an 84,7% pass rate.⁸¹

Where will technical schools be located? If they are distributed by academic performance, so that lower-performing schools become vocational or occupational institutions, this will map very closely to the spatial inequality we are familiar with. If this is the case, learners in rural areas may find there are only technical schools near them. In fact, the chances of a rural community having three different schools – academic, technical vocational and technical occupational – near enough to be options for them, is extremely unlikely. This limits their choice of schools and their choice of futures. It would represent only partial coverage of the government's plans.

5.3 Pro-poor funding

Currently the government gives poorer schools more funding than richer schools (not including teacher salaries and infrastructure budgets), by ranking them from 1-5 in the Quintile system. The funding model of the new technical streams has not yet been released, so it is not clear whether or not they would be part of the Quintile system or not. In fact, the Quintile system itself may be changing. If the technical schools take learners who are towards the lower end of the academic spectrum, there are likely to be many learners from poor and working class communities in this stream. Schools are likely to be situated in poor and working class areas. Whatever the funding model, it is important that it channels more funds to poorer schools.

⁸¹ <http://www.groundup.org.za/article/what-do-matric-results-mean/>

6. Weak Foundations

The implementation of the three stream system will find itself thwarted by the same factors which impede teaching and learning in most South African schools, including poor infrastructure, chronic learning material shortages, poorly trained teachers, and poor support from education officials.

In making for a case for the introduction of the new system, director general of the Department of Basic Education (DBE), Mathanzima Mveli, has been quoted in the media as saying that not all learners are “academically inclined”. This is highly questionable, and shifts the blame to learners. His assertion makes it necessary to probe whether the current, mainstream schooling system – what the DBE calls the “academic” stream – gives all learners of both affluent and impoverished circumstances an equal opportunity to fulfill their potential and adequately prepare them for a traditional university education. In a later presentation, Mveli made reference to insurmountable learning deficits as a key reason in school dropouts, but nonetheless did not engage with the causes of such deficits – academic inclination was still seen as the key factor.⁸² If the three stream system does not recognize the socio-economic and educational structural factors that stratify learner performance, it will only worsen South Africa’s inequality.

6.1 “Starting behind and staying behind”

The difference in the quality of education children receive is evident from the very start of a child’s formal school career: Grade R.

There is wide consensus that early childhood learning programmes are the best interventions to overcome the disadvantages faced by children from poor home backgrounds.

But in South Africa’s Grade R classrooms, the gap between the haves and have-nots begins to broaden.

Data from 18 102 South African schools reveals that instead of narrowing learning inequalities, Grade R has further widened the gap between children from underprivileged and well-off schools, because of problems that include teacher capacity.⁸³

South Africa has a substantial number of unqualified Grade R teachers – referred to as Grade R practitioners. Of the country’s 21 207 Grade R teachers, 12 336 are “unqualified or underqualified”.⁸⁴

The study commissioned by the departments of Performance Monitoring and Evaluation, and Basic Education, measured the impact of the introduction of Grade R on a child’s learning later on in life. The results were “virtually no measurable impact” for children in quintile one, two and three schools, but that Grade R improved maths and home language performance by about half a year’s learning for children in quintile five schools.

⁸² Department of Basic Education, “Skills Revolution in the Basic Education Sector”, Presentation to the Portfolio Committee on Basic Education, 15 March 2016. Slide 17.

⁸³ Van der Berg, S., Girdwood, E., Sheperd, D., Van Wyk, C., Kruger, J., Viljoen, J., Ezeobi, O. & Ntaka, P. 2013. *The impact of the introduction of Grade R on learning outcomes*. Final Report (Policy Summary, Executive Summary and Evaluation Report) for the Department of Basic Education and the Department of Performance Monitoring and Evaluation in the Presidency. Stellenbosch: Department of Economics, Stellenbosch University.

⁸⁴ <http://www.gov.za/speeches/departement-basiese-onderrig-werkende-om-om-beter-opleiding-gee-4-aug-2015> Accessed 11 February 2016.

On average, the impact of Grade R translated to a child gaining just 12 days' worth of learning in maths, and 50 days in home language (for a school year of 200 days) compared to a child not enrolled in Grade R.

Worse, by September of children's Grade 1 year, the performance gap in the annual national assessments (both numeracy and literacy) between children attending quintile five schools, and children attending schools in quintiles one to three, is equal to a gap of about a year and a half's learning.⁸⁵

As many studies point out, children acquire learning deficits early on, and the accumulation of those deficits is why they underperform in later years. Learners are routinely promoted from one grade to the next without having mastered the building blocks in the preceding grades.⁸⁶ Insurmountable accumulated learning deficits are also one of the key reasons that learners drop out in later grades.

One study using four datasets spanning the period 2007 to 2011 found that only 16% of 9-year-olds were performing at an academic level appropriate for their grade, and that the learning gap between the poorest 60% of Grade 3s and the wealthiest 20% was three years' worth of learning.

By Grade 9, that gap had grown to four grade levels.⁸⁷

The limitation of this research was that the authors could not determine whether the learning deficits were the consequences of a disadvantaged home background, weak early childhood development, or weak teaching in grades 1, 2 and 3.

The first national evaluation of how learners in grades 1, 2 and 3 were taught, revealed that in the 133 urban schools evaluated, most teachers did not know how to teach learners to solve numeracy problems, or to read on their own.⁸⁸

The second national evaluation undertaken by the National Education Evaluation and Development Unit (Needu) investigated learning in rural primary schools.⁸⁹ The findings included that Grade 5 learners at the schools visited scored no more than four out of 20 on a comprehension test, and that nearly 22% of the Grade 5 learners were considered illiterate.

Few subject advisers and senior teachers considered listening to learners' reading important, and thus "the most fundamental capacity to be learned in primary schools – reading with comprehension" was left unmonitored in the majority of schools visited.

The pace of lessons was found to be "painfully slow", and children were not being developed into inquisitive, independent seekers of knowledge.

⁸⁵ Kotzé, J. 2015. *The readiness of the South African education system for a pre-Grade R year*. Stellenbosch Economic Working Papers: 15/15. Stellenbosch: Department of Economics, Stellenbosch University.

⁸⁶ <http://www.iol.co.za/mercury/counting-the-costs-of-falling-behind-1795668>

⁸⁷ Kotzé, J. & Spaul, N. 2014. *Starting Behind and Staying Behind in South Africa: The case of insurmountable learning deficits in mathematics*. Stellenbosch Economic Working Papers: 27/14. Stellenbosch: Department of Economics, Stellenbosch University.

⁸⁸ Needu National Report 2012 "The State of Literacy Teaching and Learning in the Foundation Phase". Released April 2013.

⁸⁹ Needu National Report 2013 "Teaching and Learning in Rural Primary Schools". Leaked April 2015.

6.2 “Teachers can’t teach what they don’t know”

The quality of an education system cannot exceed the quality of its teachers, it is often said.

Nic Spaull, from the economics department at Stellenbosch University, argues that if we don’t get in-service teacher training right in the next 20 years (providing existing teachers with meaningful learning opportunities), we do not have a hope of fixing the education system.

The number of new teachers joining the education system each year is too small to have a big impact on the quality of education for most children.⁹⁰

That nearly 80% of Grade 6 maths teachers cannot do what the curriculum expects of the 12-year-olds they teach is the finding of a study by Spaull and Professor Hamsa Venkatakrisnan, the South African Numeracy Chair at Wits.⁹¹

Alarmingly, Spaull and Venkatakrisnan said they were unable to find evidence of any sort of existing training and professional development intervention which had helped to improve the knowledge of maths teachers.

In his analysis of data from the 2010 Southern and Eastern Africa Consortium for Monitoring Educational Quality, Spaull found the top 5% of Grade 6 pupils in South Africa achieved higher scores in the same maths test than the bottom 20% of Grade 6 maths teachers.

Most research into what maths teachers know has focused on primary school teaching.

But a study in KwaZulu-Natal sheds some light on the ability of high school teachers. A sample of 253 KZN maths teachers who were given an old matric maths exam paper to write, managed an average mark of just 57%.⁹²

The teachers who participated managed an average of only 26% on the level four (problem solving) questions.

It’s worth noting that the sample of teachers were studying toward an Advanced Certificate in Education at the University of KwaZulu-Natal, and wrote the maths exam while in the last semester of the two-year upgrading programme.

Despite their poor subject knowledge, the overwhelming majority of South African teachers are considered to be appropriately qualified.⁹³ Needu points out that billions of rands have been spent on improving teachers’ subject knowledge, through a plethora of teacher in-service training programmes – but these efforts are “widely perceived” to have come to naught.

According to Spaull, no one currently knows what works when it comes to large scale in-service teacher training programmes - not the DBE, or unions or researchers.

⁹⁰ Spaull, N. 2015. “Teachers and teacher content knowledge in SA, finding a way forward” in *Taking Equal Education into the Classroom*.

⁹¹ Spaull, N. & Venkatakrisnan, H. 2014. *What do we know about primary teachers’ mathematical content knowledge in South Africa? An analysis of SACMEQ 2007*. Stellenbosch Working Papers: 13/14. Stellenbosch: Department of Economics, Stellenbosch University.

⁹² Bansilal, S, Brijlall, D & Mkhwanazi, T. 2014. An exploration of the common content knowledge of high school mathematics teachers. *Perspectives in Education*. 32 (1).

⁹³ Needu National Report 2012 “ The State of Literacy Teaching and Learning in the Foundation Phase”. Released April 2013.

To begin to fix teacher development means basing these programmes on reliable evidence - not “politics, fads or what looks good on paper.”

Nick Taylor, former head of Needu, argues that most teachers and principals are doing their best, but that they themselves are poorly educated.⁹⁴

Teacher issues are a key factor in the low quality of education currently. They are not going to disappear under a restructured system. Teacher quality, training and supply are important practical issues; the new system could well prove to be *more* demanding in all of these dimensions.

6.3 “Replicating apartheid”

The inequality which the schooling system continues to replicate threatens to be formalised - even entrenched - by the three stream system.

The vast majority of schools which serve black pupils are dysfunctional, and cannot teach pupils to properly read, write and count.

While in 2014 the academic stream equipped 66.7% of white matrics to pass well enough to study toward a degree at university, it did the same for just 23.8% of black matrics.⁹⁵

The proportion of black 22- to 25-year-olds who by 2014 had a matric certificate to their name (48.4%), was far lower than the proportion of white youths (87.9%).

By 2008 the throughput rate for white pupils was already more than double that for black pupils, at 73.4%.⁹⁶

Figures from the DBE show that 83% of white matrics score above 40% for maths, and 76% of white matrics scored above 40% for physical science. A much smaller number of black matrics (28.5%) score above 40% for maths, and just 31.7% score above 40% for physical science. A whopping 98.7% of white matrics scored above 40% for maths literacy, compared with 54% of black matrics.

The massive achievement gap in turn shapes life and employment chances. This interfaces with one of the things we find most dangerous about the three stream system – the idea that once you have been streamed, your life is set on an immutable path (and that this is shaped by socio-economic status and race). But our education system is already doing that.

As Spaul says: “The dualistic South African education system is not an engine of social mobility but rather one of the key mechanisms through which an unequal society is replicating itself.” All of which is not to say that the three stream system could not do it even more effectively and unequally.

6.4 The DBE must first do what it already does, better

Rather than tinker with the exit points of the schooling system, the DBE needs to dedicate greater effort toward drastically improving teaching and learning in the foundation phase.

⁹⁴ <http://www.iol.co.za/capetimes/lack-of-leadership-quality-at-schools-1972626>

⁹⁵ <http://www.iol.co.za/mercury/school-system-replicating-apartheid-1949811>

⁹⁶ Dividing the number of Grade 12 passes by the Grade 10 enrolment two years earlier equals the throughput rate.

6.4.1 Foundation Phase

Grades R to 4 are crucial for arresting achievement gaps - if South Africa is able to provide high quality education in the foundation phase of schooling, this would stem the tide of high school dropouts. We cannot possibly assess whether children are “academically inclined” because of the dysfunction of the current schooling system.

6.4.2 Teachers

A key theme of the preceding discussion have been the teacher issues which hamstring the education system. Among the many questions that EE has about the new system is who will teach the new curricula? Will existing teachers be retrained, or will people with experience in the relevant trades be staffing classrooms? If so, they will also need teacher training. What will attract someone with the skills to work in an industry to rather work as a teacher (assuming they are paid as badly as our existing teachers)? The DBE admits that it already faces a shortage of artisans with educational qualifications, yet it proposes a system which will require exponentially more of these.⁹⁷

If technical streams are to make up 60% of the whole basic education system, how long will it take to either retrain 60% of our existing teachers, or train new teachers to make up the required numbers? And if we are going to take these steps, why is the department not *already* taking them to address our poor-performing teachers? As noted, we simply do not know whether the in-service training that has been run by the DBE has had any effect whatsoever.

Research has consistently shown that South Africa’s teachers lack the basic content knowledge and pedagogical skill to teach the subjects that they are teaching - crippling hurdles to which the new system will not be immune. In fact, it could well prove more complicated. A recent protest by learners at Sizimisele Technical High School in Khayelitsha over unfilled teacher posts (including for technical subjects like engineering graphic design and mechanical technology) illustrates that issues facing teaching and learning are unlikely to disappear soon.⁹⁸

6.4.3 Infrastructure

It is not necessary to restate the profound disparity of school infrastructure and resourcing. EE has campaigned on this issue for years and it is well known. However, it is worthwhile to consider how the three stream system might interact with this. Whether schools are converted to technical streams or built anew, this will require substantial amounts of infrastructure provision.

Similar to teacher issues, the three stream system will likely place *greater* demands for infrastructure provision on the government. There is little to suggest that this is a demand which could be met. As it stands, the DBE has recommended the pilot to include only special schools with existing workshops, due to resource restrictions.⁹⁹ Despite this they project an exponentially increasing rate of technical school provision. It is unclear what developmental capacity the department has based these estimates

⁹⁷ “The Introduction Of A Three Stream Model Into The Basic Education Sector” Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

⁹⁸ www.groundup.org.za/article/khayelitsha-technical-school-students-demand-more-teachers/

⁹⁹ “The Introduction Of A Three Stream Model Into The Basic Education Sector” Department of Basic Education Presentation to the Dialogue of the Institute for Justice and Reconciliation, 23 February 2016

on. Given the limited capacity for school upgrading which has been demonstrated to date, this is likely to be impossible.

Provision of technical schools will be expensive and most likely extremely slow to implement. Some schools will just not get the equipment they need. If the schools are converted in name before they receive equipment, students in situations could end up learning the “theory” of vocational skills rather than how to actually do them.¹⁰⁰ This will have a negative effect on education outcomes, and increase inequality between wealthy academic schools (which will face no transition costs), the majority of poor schools who face a new curriculum without the appropriate equipment, and the rare schools that receive sufficient support to manage the transition.

There is even the possibility, however distant, that being placed on a waiting list for conversion into a technical school could be used as an excuse to defer that school’s infrastructure needs or as a reason for non-compliance with Norms and Standards for School Infrastructure.

6.4.4 Scholar Transport

Ensuring that learners have the option to attend the stream most appropriate for them may require high transport costs, especially in rural areas where multiple schools in the same village is unjustifiably expensive. If the government is unwilling to pay this transport cost, as the underfunded scholar transport policy in KZN¹⁰¹ indicates they will be, this will result in rural learners being forced into an inappropriate (and likely lower) stream than they are capable of.

6.4.5 Administrative Nightmares

The transition will be complex to administer. To be done properly, children will need to be tested, appropriate businesses identified and consulted, funding models developed, new curriculums created, teachers trained, or retrained, schools designated and equipped, and transport plans designed. Further administrative load on a department already straining under its responsibilities is not likely to yield positive results.

6.4.6 The wrong focus

Infrastructure and teacher issues are not just things which could cause the three stream system to fail. Rather, it should be stressed that this plan is not a panacea for the failures of the system, and places more demands on exactly the areas which have failed. Nothing we have heard from the department so far engages with the existing education system. This is reflected in the Director General’s comment that school dropouts are not academically inclined! One would expect a major educational reform to speak to how it is going to solve the educational failures of the current system. We should be having a conversation about how the DBE plans to fix under-resourced schools and train teachers much better. But instead we are talking about something which will receive a great deal of funding (as something with political will behind it) but doesn’t even try to deal with the inequalities of the system.

¹⁰⁰ http://siteresources.worldbank.org/INTAFRREGTOPSEIA/Resources/paper_Lauglo.pdf

¹⁰¹ <http://www.equaleducation.org.za/article/2015-11-12-three-nquthu-schools-receive-scholar-transport>

7. Conclusion and Recommendations

7.1 Access to information

What little is known about the three stream system has been shared with the public through a few media interviews and presentations by the DBE. There have been no documents released, and as such there is important information missing which would allow us to scrutinise the functioning and extent of this reform. Some examples of the kinds of information missing are:

- The system proposes two points at which streaming will occur – one as early as grade 4, and a further split into one of the streams following grade 9. However, it is not clear which is the main point of separation, as the proportions of learners who are expected to be routed away from general education at the various stages are not known.
- Details about the method via which learners will be placed in different streams, and their choice in the matter, is also not known. This is an important concern as it affects the equity of the system.
- It is also unclear how the DBE decided on the subjects to be studied in technical schools, and what surveys of the labour market, employer demand, and existing skills formation this was based on. Nor is it known how up-to-date the subjects will be as regards new technological developments in production.
- The names of the schools, and how this pilot will be monitored and evaluated has also yet to be released.
- There is very little information on how this programme will be implemented. For instance projections indicate 14 592 schools being equipped to offer technical subjects by 2022. This is an astonishing number, but this has not been backed up with actual planning, costing and consideration of capacity to implement this.
- It is unclear whether this number includes vocational as well as occupational streams, in what proportions, and how the pre-NQF level 1 Skills and Vocational schools will fit into this.
- This also implies that this initiative will not simply be based on new schools being built, but will rather convert academic schools by adding workshops to them. However, it is not clear whether this will be a total conversion or whether it will allow the schools to continue offering academic streams.
- It is difficult to assess whether this is a cosmetic change or a massive reorganisation, as there is significant room for policy variance. The legislative changes thus far are nondescript. A second figure quoted only mentions 1 824 schools by 2022, and there is no indication of the steps being taken to extend the pilot beyond the 58 schools already equipped to offer the occupational curriculum.
- The relation of technical schools to TVET (formerly FET) colleges is unclear. Will technical vocational schools prepare learners for further study at TVET colleges? Or will they run in parallel with the colleges? This is relevant as TVET colleges do currently offer courses from the equivalent of grade 10 level.

While the DBE has promised to publish the finalised occupational qualification and subjects for comment before the end of the year, there has been no commitment to releasing detailed implementation plans on a school or national level, nor making the assessments of the pilot public – another round of consultation following the pilot is crucial and should not be treated as a formality before wider implementation. Engagement with the DBE should push for this, as well as raising the other issues within this report.

7.2 Lessons from South Africa's existing skills development systems

The existing system of skills development in South Africa offers a warning to the three stream system. Skills formation has undergone market-oriented reforms aimed at improving students' employability by allowing them to choose from a 'market of qualifications', which are often low-level, fragmented task-based skills, disconnected from genuine work contexts.

- The government has indicated that in the technical vocational stream, there will be three core curricula, each based around one type of engineering. This is not a case where learners will choose from a market of qualifications. However, this model still represents a danger, and something the technical occupational stream will be particularly vulnerable to. The reports of 26 subjects to choose from including hairdressing, spraypainting and panelbeating could well form a fragmented curriculum that does not necessarily prepare learners for greater employment opportunities.
- The provision model of the SETAs has been that of a regulated market of providers. This has led to low quality, shallow skills provision. As public institutions, schools will not be exposed to the same logic that shapes the low quality SETAs. However, they may depend on them for workplace experience and thus their failings will constrain the new system.

The TVET colleges offer a good analogy for what may happen to the technical streams: these are institutions which were too weak to adapt to a new technical curriculum, whose lecturers were unprepared and ill-trained for the changes, and whose graduates have consequently experienced little or no improvement of their 'employability'. The new technical schools are likely to face all of these obstacles. In addition, the low completion rates of NCV courses at TVET colleges are a clear indication that simply routing learners into a technical stream is not going to solve high dropout rates: learning deficits inherited from earlier education will be obstacles to technical education just as much as they are to general education. It should be noted that TVET colleges already offer a technical stream of education from the equivalent of grade 10 and up; the interaction of this with technical schools is unclear.

Some analysts blame high unemployment rates for TVET graduates on a 'supply-led' reform, that is, when curricula are designed without consulting with industry or relevant employers in terms of the actual skills that are required, so that students leave the system without improved job opportunities.

We should be cautious, however, in giving too much say to employers: a demand-led system may be useless if the demand is for cheap, unskilled labour. There is also the counter-example of the SETAs, where employers have been able to specify the skills they require, and these specifications have formed the basis of qualifications under the NQF. As discussed earlier, this has not been successful in creating strong or useful curricula for the SETAs.

Nonetheless, it is certainly problematic when technical courses do not involve work placements for part of the year, and ideally technical schools should have close relationships with employers in terms of occupational placements for learners. There is a great deal of work required to achieve this. One part of this could also occur through greater state intervention, by directing the development of specific industries and planning TVET training to meet these needs.

7.3 Lessons from other countries

- **Reinforcing Systems:** There are a number of broader social and economic issues which can either constrain or strengthen skills formation, beyond the state of technical education itself. The greater social protections and equality of more co-ordinated economies have been found to have a positive relationship with skills formation. Specifically, measures such as well-funded public schooling (including preschool, and vocational training) help develop high-level vocational and general skills, while strong collective bargaining, wage protections and government provision of social goods provides incentives for even lower-achieving learners to work hard and get into vocational colleges or apprenticeships, raising the skills levels at the bottom end. Stable, well-paying jobs foster the sustained accumulation of skills over time. Consequently, both general and specific skills are strong in these countries, and income inequality is lower.

By contrast, in liberal market economies there are weaker public education systems, and the middle classes often self-insure by going to private schools, guaranteeing their entrance into university and the top jobs. Vocational education is weaker, and so there is little incentive for lower-achieving students to work hard, especially with fewer protections or opportunities for advancement.

- **Developmental states:** the Asian Tigers offer a useful example for skills formation because this occurred as part of a broader state policy for economic growth. Having prioritised specific industries, these countries were able to structure technical and vocational training to closely meet the stimulated demands of these industries.
- **Equality:** International experience points to consistent issues of around the equity of streaming. In Germany, streaming has been described as discriminatory towards ethnic minorities and lower socio-economic classes. The educational stream children end up in depends to a great deal on the education levels of their parents. Further, the early age at which streaming happens – 10 years old – has been shown to exacerbate inequality. This is particularly problematic when it comes to the way that streaming tends to set the course for one's life – there is very little inter-track mobility.

In China, there seems to be evidence of geographic inequality, as VET schools are more accessible in rural areas. A rural student may struggle to find an academic school in the area, and therefore have no choice but to attend what have been described as recruiting grounds for factories.

- **Skills desired by employers:** Global surveys indicate that technical skills are not the most highly desired by employers, or the kind of skills where the greatest gap exists. The most highly desired were socio-emotional skills, followed by higher cognitive skills. This is a serious warning for the three stream system: technical training is not the same thing as job-readiness. Many of the skills employers thought of as contributing to the job-readiness of a worker were classified as socio-emotional or higher cognitive. This suggests that a narrow focus on giving learners technical skills will not necessarily make them more attractive in the job market, nor allow them to meet the needs of employers.
- **International best practice** shows that while technical skills are important, they should be learned at the appropriate stage in a child's development, as part of a broad package of skills. Learners should therefore be kept in general stream of education until at least some way through high school. The best results in technical education globally have been achieved in experience-based learning, or a mix of experience and some theoretical work, rather than an exclusively classroom-based model – but in a supportive environment that helps to develop a

balance of different kinds of skills. This would make inter-track switching and opportunities for later learning (important concerns relating to the equity of streaming) more viable.

7.4 Economic Framework

Education is not an economic programme, and it is inappropriate for it to be a substitute for one, primarily because it does not work, and also because it places the responsibility for growth and development on individuals (with a smaller role for the state).

- Greater emphasis on technical education is justified by the idea that this will help learners become more 'employable' or at least able to start their own businesses. But education does not create decent jobs - more skilled people may just feed into the growing unemployed, or work at very low wages. And skills are not going to create entrepreneurs. Investment, demand, business expertise does that. What is really needed is a sound industrial policy. While the NDP promises to be that, it is not clear that this has delivered results yet. Ultimately the rationale for this reform depends on the idea that supply will create its own demand, which is a fallacy.
- The formalised world of work as a salvation does not yet exist, and where it does exist, does not always lift people out of poverty. All attempts at skills formation will be constrained by the South African economy, marked by massive unemployment, minimal labour or welfare protections, and high rates of working poor. This militates against the long-term, relatively prosperous occupational trajectories required for high skills development.
- Focusing on skills training is sacrificing the non-instrumental aspects of education (the way in which it is a good in itself) for greater instrumental value (that is, the good consequences it brings: economic benefits to the individual or society). But this formula will not always work. This trade-off can be detrimental both to the value of the education in itself, AND fail to bring about economic benefit. It is dangerous in that it can leave learners extremely vulnerable to fluctuations in the economy, mechanisation which sheds jobs, and so on. An especial danger in this situation is that supply of these skills exceeds demand. For instance, it is not clear that our training institutions are holding back the number of practitioners in fields covered by the technical occupational stream - hairdressers, spraypainters and the like. Rather, this is limited by demand. The new graduates of the third stream would be unable to do other jobs if they could not find work, having not had a secondary education.
- On the other hand, it is precisely a *general* education which allows people to adapt to changes in the economy and study further. Having all learners with a solid base of general education before they specialise into technical fields is probably better for the economy in the long term.

7.5 Close to employers or far from them?

Within the public discourse on technical skills training, many use the idea of a 'skills gap' to argue that technical training should be shaped by the needs of employers. While this is clearly important, employer-specified systems are not without limitations.

It is true, for example, that poor linkages between TVET colleges and industries are a huge problem, and one of the reasons graduates struggle to find employment. Short term work placements during

studies represent another way in which industry and training institutes can interface productively. An *institutional closeness* is clearly needed. Technical skills requirements change as technology changes and these plainly need to be updated regularly. This too can be helped by a close association with business.

But experience shows it would be foolish to cede too much control to business. Specifically, allowing employers to create curricula has not produced high quality qualifications which open career opportunities to graduates. Rather, these are often over-specified and low-level.

Further, existing businesses are not always best placed to predict changes in the economy: some of them will be put out of business by changes in the economy. So having curricula totally informed by business will likely not prepare workers to take part in the economy of the future. This points, once again, to the necessity of general education (which improves adaptability), and for some distance between education and employment: that is, ensuring that the institutions responsible for technical training are strong, and that they remain *public* (rather than totally controlled by business). After all, another major reason for TVET graduates' struggle to find employment has been the low quality of instruction and hence of their technical skills. This can only be solved by focusing on the quality of education itself, which necessarily entails strengthening the institutions which impart it.

7.6 Equity

Race and class

International experience shows that tiered education often fails to break down, and even exacerbates, socio-economic inequality. This is because performance is strongly linked to wealth, and parental education levels. So when it comes to being streamed, learners from poor and working class communities tend to be disproportionately represented in technical streams.

South Africa's historic and overlapping social inequalities of race and class suggest that the three stream system will be no different. While the methods of selection for the different streams are not yet publicly known, assuming that performance in exams is an indicator of how learners will be streamed reveals the problem. In our unequal society, results are linked to opportunity and resources, both at home and at school.

The streaming process will likely place those who have had the most limited opportunities, into the technical occupational and technical vocational streams. Given that the economy is characterised by massive unemployment, widespread casualisation and growing rates of the working poor, the opportunities to get stable jobs as well-paid artisans are rare. These learners will likely remain in the class they were born. Moreover, once streaming has taken place it will probably be extremely difficult to change stream, especially to be able to cope in the academic stream having been in a technical stream. This means that learners' futures are substantially set by the time they are 11. The loss of a general education counts against their chances of shifting careers, studying further or adapting to changes in the economy. The early age of streaming (grade 4) is also detrimental to equality, as there is less general education to overcome pre-existing developmental deficits.

Geographic Inequality and Learner Choice

Apartheid has left a deep legacy of spatial inequality. Townships and former homelands remain extremely poor and are often left without basic public services. Schools are no different. Whether it tries to or not, the three stream system will interact with this inequality. Whether new technical stream schools are built, or existing academic schools converted, their location and distribution is a political choice.

If schools are distributed by academic performance, so that lower-performing schools become vocational or occupational institutions, this will map very closely to the spatial inequality we are familiar with. If this is the case, learners in rural areas may find there are only technical schools near them. In fact, the chances of a rural community having three different schools – academic, technical vocational and technical occupational – near enough to be options for them, is extremely unlikely. This limits their choice of schools and their choice of futures. It would represent only partial coverage of the government’s plans.

Pro-poor funding

Currently the government gives poorer schools more funding than richer schools (not including teacher salaries and infrastructure budgets), by ranking them from 1-5 in the Quintile system. The funding model of the new technical streams has not yet been released, so it is not clear whether or not they would be part of the Quintile system or not. In fact, the Quintile system itself may be changing. If the technical schools take learners who are towards the lower end of the academic spectrum, there are likely to be many learners from poor and working class communities in this stream. Schools are likely to be situated in poor and working class areas. Whatever the funding model, it is important that it channels more funds to poorer schools.

7.7 Weak foundations

Rather than tinker with the exit points of the schooling system, the DBE needs to dedicate greater effort toward drastically improving teaching and learning in the foundation phase.

Foundation Phase

- Grades R to 4 are crucial for arresting achievement gaps - if South Africa is able to provide high quality education in the foundation phase of schooling, this would stem the tide of high school dropouts. We cannot possibly assess whether children are “academically inclined” (as the DBE claims many are not) because of the dysfunction of the current schooling system.

Teachers

- South Africa’s teachers lack the basic content knowledge and pedagogical skill to teach the subjects that they are teaching - crippling hurdles to which the new system will not be immune. In fact, it could well prove more complicated. Either existing teachers will need to be retrained, or artisans will have to be trained as teachers. This will need to be economically attractive as compared to working in industry, or recruitment will be limited. The DBE admits that it already faces a shortage of artisans with educational qualifications, yet it proposes a system which will require exponentially more of these.

- If technical streams are to make up 60% of the whole basic education system, how long will it take to either retrain 60% of our existing teachers, or train new teachers to make up the required numbers? And if we are going to take these steps, why is the department not *already* taking them to address our poor-performing teachers?

Infrastructure

- Whether schools are converted to technical streams or built anew, this will require substantial amounts of infrastructure provision. The three stream system will likely place *greater* demands for infrastructure provision on the government. There is little to suggest that this is a demand which could be met. As it stands, the DBE has recommended the pilot to include only special schools with existing workshops, due to resource restrictions. Despite this they project an exponentially increasing rate of technical school provision. It is unclear what developmental capacity the department has based these estimates on. Given the limited capacity for school upgrading which has been demonstrated to date, this is likely to be impossible.
- Provision of technical schools will be expensive and most likely extremely slow to implement. Some schools will just not get the equipment they need. If the schools are converted in name before they receive equipment, students in situations could end up learning the “theory” of vocational skills rather than how to actually do them. This will have a negative effect on education outcomes, and increase inequality between schools.
- There is even the possibility, however distant, that being placed on a waiting list for conversion into a technical school could be used as an excuse to defer that school’s infrastructure needs or as a reason for non-compliance with Norms and Standards for School Infrastructure.

Scholar Transport

- Ensuring that learners have the option to attend the stream most appropriate for them may require high transport costs, especially in rural areas where multiple schools in the same village is unjustifiably expensive. If the government is unwilling to pay this transport cost, as the underfunded scholar transport policy in KZN indicates they will be, this will result in rural learners being forced into an inappropriate (and likely lower) stream than they are capable of.

Administrative Nightmares

- The transition will be complex to administer. Further administrative load on a department already straining under its responsibilities is not likely to yield positive results.

The wrong focus

- Infrastructure and teacher issues are not just things which could cause the new system to fail. Rather, it should be stressed that these plans are not a panacea for the failures of the system, and places more demands on exactly the areas which have failed. Nothing we have heard from the department so far engages with the existing education system. This is reflected in the Director General’s comment that school dropouts are not academically inclined! One would expect a major educational reform to speak to how it is going to solve the educational failures of the current system. We should be having a conversation about how the DBE plans to fix under-resourced schools and train teachers much better. But instead we are talking about something which will receive a great deal of funding (as something with political will behind it) but doesn’t even try to deal with the inequalities of the system.