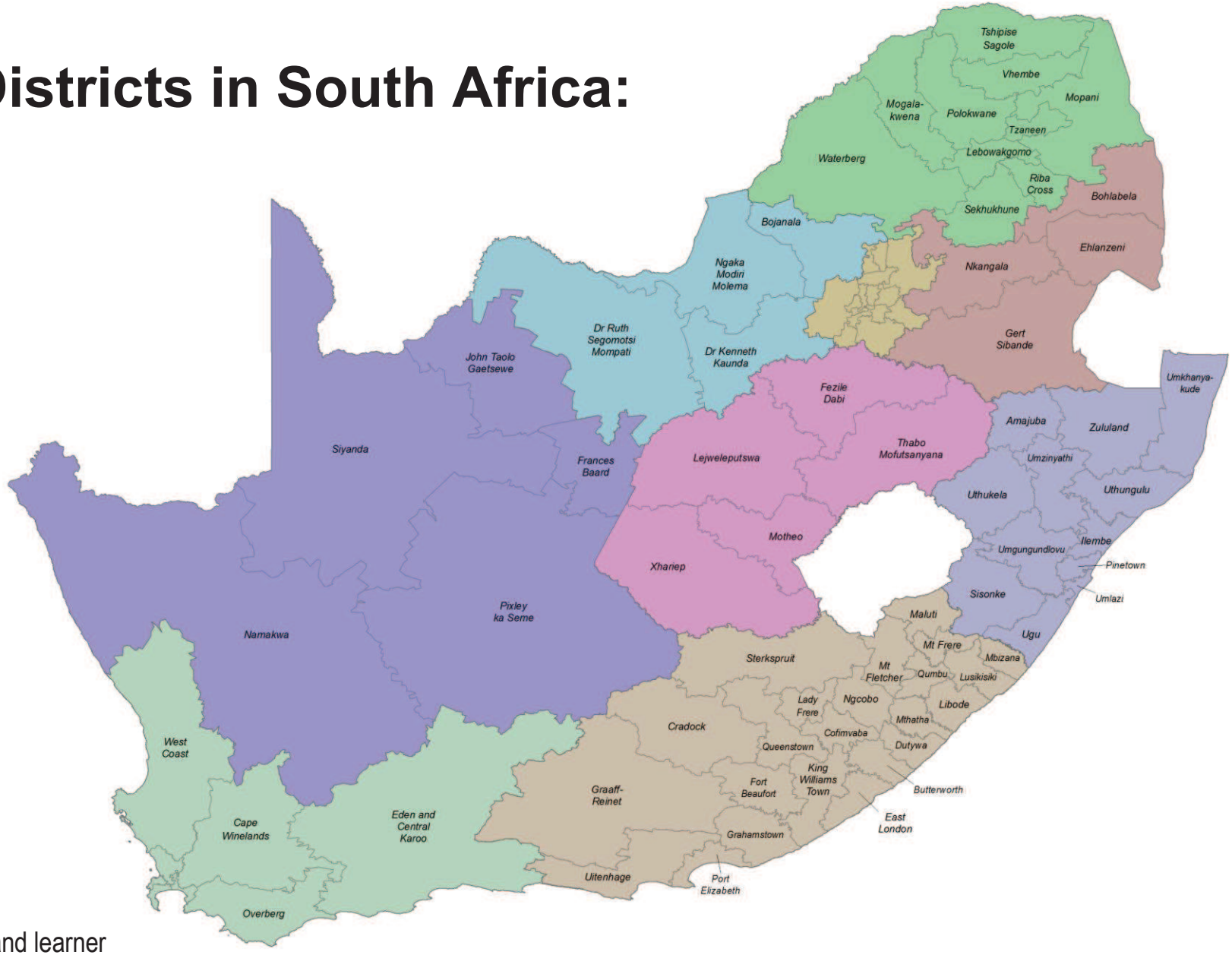
Education Districts in South Africa:

A Review



District profiles, small schools and learner migration project for the national Department of Basic Education (DBE)

Project partners:

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Executive Summary

The Department of Basic Education established a project in 2012 which required a specialist Geographical Information Systems (GIS) service provider to use a range of complementary data sets to provide graphical and descriptive representations of various variables relating to schools and education districts.

The result is a report which explores in some detail through a series of dedicated chapters aspects of district composition and a number of variables as they impact on schools and districts in both single factor and in comparative tables and graphics. The factors which are explored include the profiling of education districts, performance of schools and districts in both Matric and ANAs, poverty indices for districts, infrastructure issues at school level, social issues at learner level and teacher profiles. The result is a comprehensive overview of education districts and their schools. The graphics and tables help the reader digest and understand the data and relationships, while the analysis in the report and the data implications section puts the data into context. The analysis is particularly aimed at drawing out the policy and practice implications of the data presented in the report.

Much of the data is familiar to education professionals, however the way that it is treated and some of the comparative tables and graphics give new import to this known data, while some of the analysis will be new to most readers. This is particularly true of the sections on years of learner effort to achieve a single Matric pass, the quintile 1 schools which score over 80% in Matric, the number of quintile 1 schools in the system, the way that most indicators get worse the further east one goes in South Africa, and the inferences that can be drawn from the intra-district variations, particularly in higher performing wealthier provinces.

This report, which is deliberately written and presented in an accessible style, comes at an opportune moment as the Ministry focuses on the role of districts in the system and the *Policy on the Organisation, Roles and Responsibilities of Education Districts* is promulgated. The report provides the data to allow that policy to be activated and also indicates some of the challenges provinces will face in implementing it, such as downsizing over-size districts while ensuring that their districts are properly staffed so they can fulfil the role assigned them by the policy.

The report leads to a number of proposed policy and practice-based recommendations for the Department, which are listed below:

- Engage with the new *Policy on the Organisation, Roles and Responsibilities of Education Districts* in relation to staffing, overlarge districts etc.
- Develop a publicly available website on districts encouraging a greater use of data
- Review the current Quintile allocations of schools using 2011 Census data
- Gather, map and analyse accurate information on circuits
- Update the NEIMS database to provide a current estimate of infrastructure backlogs
- Consider a task team/commission to investigate the issue of ‘small schools’ and school closures thoroughly
- Develop and implement a district education management information system (DEMIS) and related district level dashboards which include various indicators
- Investigate anomalies in ANA results, particularly where there is divergence between Matric and ANA results

- Ensure that efforts are made to ameliorate/reduce the high orphan and pregnancy rates in KwaZulu-Natal and parts of Mpumalanga and the Eastern Cape
- Intervene in districts where the choice of subjects in Matric is either inappropriate or designed to maximise the pass rate to the detriment of learner life choices
- Address and plan for the issue of ageing teacher cadres in specific districts.

2.1 Comments on Matriculation results

The Matriculation examination represents the key exit point for learners in Grade 12. If they pass they have the option of continuing with higher education or attempting to enter the job market. If they fail, there is the prospect of repeating Grade 12 and re-sitting the examination, or of dropping out without any formal qualifications.

The Matriculation examination is therefore the definitive measure of how well a province's schools have prepared their learners for the final hurdle. They are also a historical reflection of disadvantage and of differences in resources. Some schools consistently record a 100% pass rate whereas others struggle to exceed 40%. The performance of Secondary schools is a response to a wide range of factors, for example:

- The poverty and literacy levels of the local community served by schools
- How well local Primary schools have prepared their learners before they enter local Secondary schools
- The extent to which local communities support and respect their local Secondary schools
- The experience, dedication and motivation of teaching staff
- The quality of the learning environment: the availability of sufficient classrooms, teaching materials and specialist facilities

These are just a few of the factors that influence the annual Matriculation results. It is also important to emphasise that the Matriculation pass rate does not tell the entire story of how well schools are performing. Often there is an unhealthy fixation with provincial pass rates: have they gone up or down? There is a range of other information one has to consider before drawing meaningful conclusions from the provincial or district pass rates, for example:

- How many entered the examination? How does this compare with previous years?
- How many wrote the examination?
- How many learners passed in total? How does this compare with previous years – a higher pass rate may be a result of lower numbers entering
- What is the ratio of passes to total Grade 12 enrolment? Were large numbers of learners dissuaded from writing the Matriculation examination?
- What is the ratio of passes to total enrolment in schools i.e. what proportion of learners actually made it through from Grade 1 to 12 and finally passed Matric?
- How many passed at a level sufficient to enter University?

Matriculation pass rates only tell a partial story of the relative performance of districts. They simply indicate the percentage of pupils who sat the exam and actually passed. They do not, for example, provide an indication of the proportion of all Grade 12s that passed. In other words, it is impossible to tell from the pass rate alone whether large numbers of Grade 12s were dissuaded from writing the exam by schools who perceived that they might fail. Similarly, the pass rate alone does not provide an indication of the overall efficiency of the education system which, in an ideal scenario, would allow for 100% of learners to progress from Grade 1 to Grade 12, write the Matriculation examination and pass.

This is best illustrated by the hypothetical case of a school with a pass rate of 80%. This pass rate may be deemed 'respectable' at face value, but what if it was derived from 16 learners who passed the examination out of 20 who actually entered, from a total Grade 12 enrolment of 30 (10 of whom did not write the Matriculation examination)? And furthermore, what if enrolment 12 years ago in Grade 1 was 120?

Viewed another way, this hypothetical school had a Grade 1 enrolment of 120 twelve years ago, which had dwindled to just 30 by Grade 12, of which only 20 sat the examination and 16 passed. The pass rate for this hypothetical school was 80% (16/20), but in real terms only 13% (16/120) of learners from Grade 1 made it through the system to the desired outcome of a Matriculation pass. The rest had either dropped out, been dissuaded from writing the examination by the school (often to protect the school's pass rate) or failed the examination.

The Matriculation pass rates therefore need to be viewed in a wider context. The actual number of passes should be assessed in relation to total Grade 12 enrolment (to see if large numbers of Grade 12s in certain districts are not sitting the examination – either through choice or persuasion). In addition, the number of passes should also be calculated as a proportion of total enrolment (Grades R to 12) to provide a broader measure of education efficiency in the province and in specific districts.

2.2 The 2012 Matriculation results

Overall, the national pass rate for Matric 2012 improved from the previous year's results. The national average increased by over 3 percentage points, and there were improvements in all provinces.

Gauteng province topped the country with a pass rate of 84% (see **Table 7**) while the Eastern Cape was at the bottom with 62% although it did increase its pass rate from the previous year by 4 percentage points. The Northern Cape had the highest positive increase of 6 percentage points followed by the Free State, Mpumalanga and KwaZulu-Natal with 5 percentage point increases. The improved pass rates were considered an encouraging improvement in performance.

However, despite the increase in average percentages, there were the usual concerns about the quality of pass rates. A Matriculant who passes with a 40% aggregate is not necessarily sufficiently literate and numerate to enter a tertiary institution or acquire a skilled job position. Overall provincial and national pass rates only provide a crude picture. There are many underlying issues that need to be considered in order to determine how successful schools and district were.

Province	2012 Average pass rate	2011 Average pass rate
Eastern Cape	62%	58%
Free State	81%	76%
Gauteng	84%	81%
KwaZulu-Natal	73%	68%
Limpopo	67%	64%
Mpumalanga	70%	65%
Northern Cape	75%	69%
North West	80%	78%
Western Cape	83%	83%
National Average	**74%**	**71%**

Table 7: Provincial pass rates for 2012 and 2011

Figure 2 below shows Matriculation pass rates for the 10 worst districts in 2012. Eight are in the Eastern Cape one is in Limpopo and one in the Northern Cape.

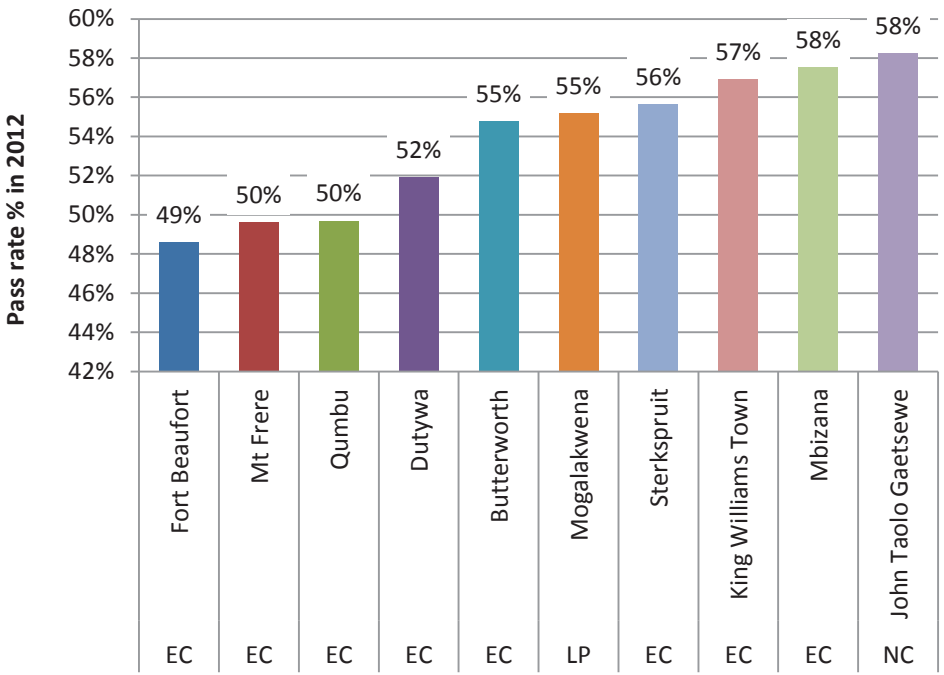


Figure 2: Matriculation pass rates for the 10 lowest districts in 2012

Table 8 overleaf shows the 2012 Matriculation pass rate for each district in South Africa. It also shows the pass rate rank (1 = best pass rate), learners who passed Matric as a percentage of all Grade 12 learners and finally the learner years of effort required to produce a Matriculation Pass.

This latter indicator is calculated by dividing the number of Matriculation passes by the total enrolment for Grades R to 12 in the district. The

resulting ratio is an instantaneous snapshot of learner effort to produce a Matriculation pass. Theoretically, in an education system with no repetition, no dropout and perfect flow-through, the ratio would be 13, since it would take learners 13 years to progress from Grade R to Grade 12 and pass Matric. The fact that it is so much higher is a reflection of the various difficulties experienced by learners along the way.

Table 8 shows that the Matric pass rates by district for 2012 varied from a low of 49% in Fort Beaufort (Eastern Cape) to a high of 89% in Gauteng North. **Map 4** illustrates the situation geographically - the districts shaded in red, many of which are in the Eastern Cape, performed the worst. **Map 5**, which immediately follows, provides a sense of which districts have experienced the greatest improvement in their pass rates since 2008. Many are coming off a low base, but the largest improvements (dark brown) have definitely been amongst rural districts.

When looking at the ratio of passes to Grade 12 enrolment in **Table 8**, the worst performing district was Libode, where only 37% of learners enrolled in Grade 12 passed. Grahamstown in the Eastern Cape had a Matric pass rate of 68%, but this was only 44% of total enrolment in Grade 12. Similarly, Dutywa had a Matric pass rate of 52%, which was only 40% of learners enrolled in Grade 12. It is possible that a number of learners chose not to write or were discouraged from writing the Matric exam. Repetition will also have played a significant role.

Examples of districts where the ratio of passes to total Grade 12 enrolment was very similar to the actual Matric pass rate were Dr Ruth Segomotsi Mompati (both figures were 72%) and Graaff-Reinet (71% and 70%).

The learner years of effort to produce a Matric pass provides a snapshot of the extent to which learners are dropping out before reaching Grade 12, not entering the examination if they reach Grade 12 or failing the examination. The greatest number of learner years effort to produce a pass was in Lusikisiki in the Eastern Cape, where the figure was 85 years. This is an example of a district where there is huge shrinkage in learner numbers over time due to dropout, repetition and failure in the final examination. Inflated enrolment figures for earlier grades will exaggerate the problem as well.

Other districts with similarly high levels of inefficiency were Libode (Eastern Cape), John Taolo Gaetsewe (Northern Cape), Mbizana, Ngcobo and Dutywa (all Eastern Cape). Districts such as these should be urgently targeted in order to try and improve the retention of learners and their successful transition beyond Grade 12.

As indicated before, a perfect education system and 100% Matriculation pass rate would require 13 years to produce a Matric pass. Districts with the lowest learner years of effort to produce a pass (arguably the greatest efficiency) include Tshwane South and Umlazi (23 years), Metro Central (24 years), Tshwane North and West (26 years) and Lebowakgomo and Ehlanzeni (27 years).

Province	Education District	Matric Pass rate 2012	Rank (1 = best pass rate) worst 10 highlighted	Passed Matric as a % of all Grade 12 learners	Learner years of effort to produce a Matric Pass
EC	Butterworth	55%	82	44%	41
EC	Cofimvaba	73%	45	65%	51
EC	Cradock	73%	44	68%	39
EC	Dutywa	52%	83	40%	63

Province	Education District	Matric Pass rate 2012	Rank (1 = best pass rate) worst 10 highlighted	Passed Matric as a % of all Grade 12 learners	Learner years of effort to produce a Matric Pass
EC	East London	68%	59	61%	33
EC	Fort Beaufort	49%	86	45%	39
EC	Graaff-Reinet	71%	51	70%	50
EC	Grahamstown	68%	60	44%	51

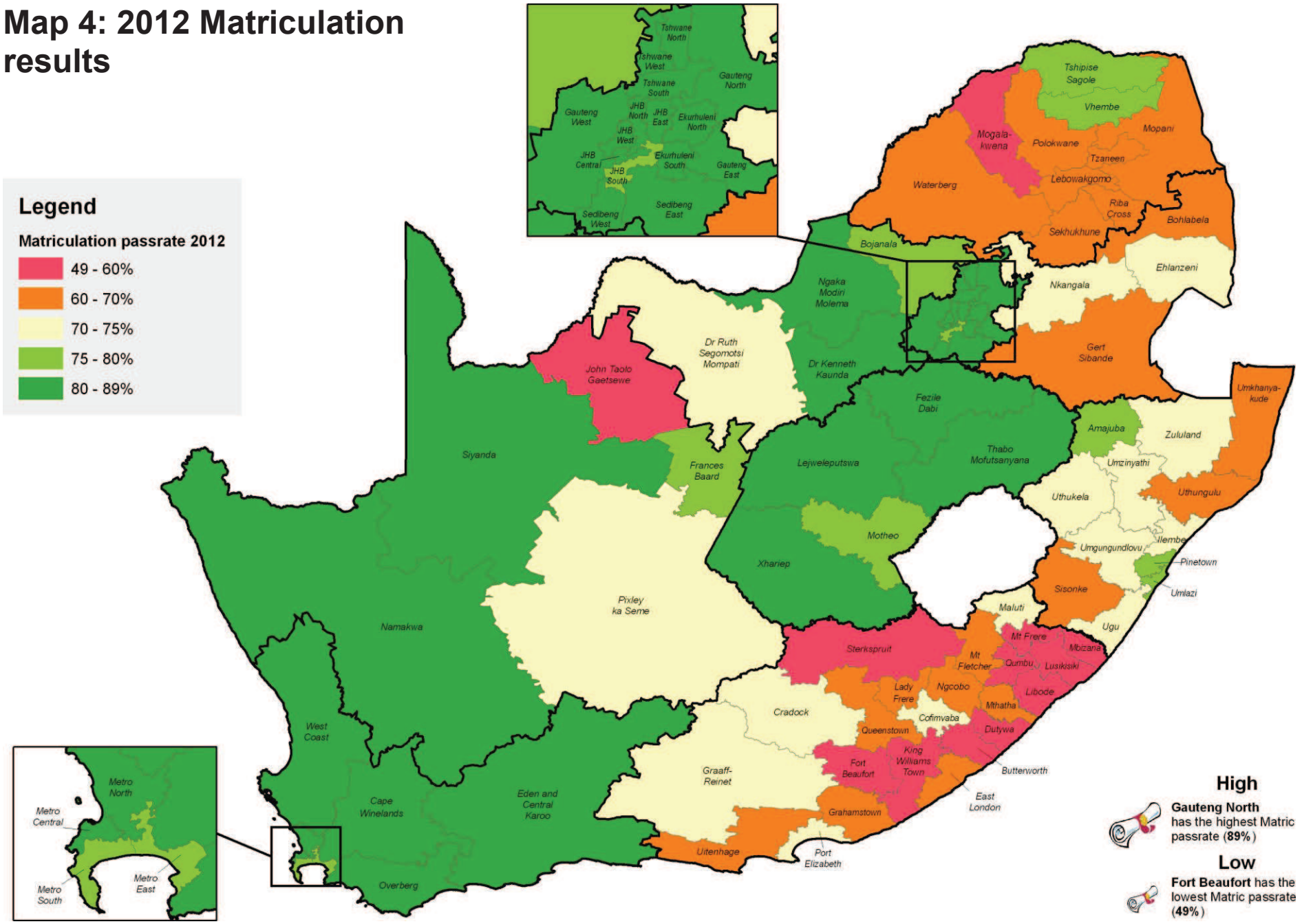
Province	Education District	Matric Pass rate 2012	Rank (1 = best pass rate) worst 10 highlighted	Passed Matric as a % of all Grade 12 learners	Learner years of effort to produce a Matric Pass
EC	King Williams Town	57%	79	51%	35
EC	Lady Frere	63%	69	56%	45
EC	Libode	59%	75	37%	84
EC	Lusikisiki	59%	76	57%	85
EC	Maluti	72%	48	66%	57
EC	Mbizana	58%	78	50%	75
EC	Mt Fletcher	67%	61	65%	50
EC	Mt Frere	50%	85	45%	65
EC	Mthatha	66%	64	58%	41
EC	Ngcobo	61%	73	57%	73
EC	Port Elizabeth	71%	52	67%	36
EC	Queenstown	62%	71	57%	37
EC	Qumbu	50%	84	49%	61
EC	Sterkspruit	56%	80	52%	54
EC	Uitenhage	69%	58	56%	50
FS	Fezile Dabi	81%	28	78%	36
FS	Lejweleputswa	83%	18	79%	35
FS	Motheo	80%	29	76%	31
FS	Thabo Mofutsanyana	81%	26	78%	34
FS	Xhariep	82%	22	80%	47
GT	Ekurhuleni North	88%	3	76%	26
GT	Ekurhuleni South	82%	21	76%	27
GT	Gauteng East	81%	24	74%	33
GT	Gauteng North	89%	1	80%	32
GT	Gauteng West	86%	12	71%	30
GT	Johannesburg Central	81%	25	72%	31
GT	Johannesburg East	86%	9	60%	33
GT	Johannesburg North	84%	16	71%	29
GT	Johannesburg South	80%	32	63%	35
GT	Johannesburg West	85%	14	74%	32
GT	Sedibeng East	86%	8	79%	28
GT	Sedibeng West	81%	27	74%	30
GT	Tshwane North	88%	2	84%	26
GT	Tshwane South	87%	5	70%	23
GT	Tshwane West	86%	13	78%	26
KZ	Amajuba	78%	35	75%	28
KZ	Ilembe	70%	54	66%	35

Province	Education District	Matric Pass rate 2012	Rank (1 = best pass rate) worst 10 highlighted	Passed Matric as a % of all Grade 12 learners	Learner years of effort to produce a Matric Pass
KZ	Pinetown	78%	36	73%	30
KZ	Sisonke	69%	56	62%	41
KZ	Ugu	72%	47	68%	32
KZ	Umgungundlovu	75%	40	62%	28
KZ	Umkhanyakude	65%	66	58%	37
KZ	Umlazi	80%	30	72%	23
KZ	Umzinyathi	72%	50	65%	37
KZ	Uthukela	73%	43	69%	34
KZ	Uthungulu	67%	62	61%	32
KZ	Zululand	72%	46	65%	32
LP	Lebowakgomo	66%	63	64%	27
LP	Mogalakwena	55%	81	51%	39
LP	Mopani	63%	70	58%	34
LP	Polokwane	66%	65	63%	28
LP	Riba Cross	60%	74	57%	49
LP	Sekhukhune	64%	67	59%	40
LP	Tshipise Sagole	79%	33	71%	34
LP	Tzaneen	63%	68	56%	32
LP	Vhembe	76%	38	74%	30
LP	Waterberg	70%	55	64%	46
MP	Bohlabela	61%	72	55%	31
MP	Ehlanzeni	75%	41	71%	27
MP	Gert Sibande	69%	57	65%	36
MP	Nkangala	73%	42	69%	34
NC	Frances Baard	76%	39	73%	35
NC	John Taolo Gaetsewe	58%	77	48%	77
NC	Namakwa	86%	7	83%	32
NC	Pixley ka Seme	71%	53	64%	55
NC	Siyanda	82%	23	75%	36
NW	Bojanala	80%	31	75%	30
NW	Dr Kenneth Kaunda	83%	19	77%	36
NW	Dr Ruth Segomotsi Mompati	72%	49	72%	52
NW	Ngaka Modiri Molema	82%	20	80%	36
WC	Cape Winelands	85%	15	79%	28
WC	Eden and Central Karoo	87%	6	81%	29
WC	Metro Central	83%	17	79%	24
WC	Metro East	77%	37	72%	30

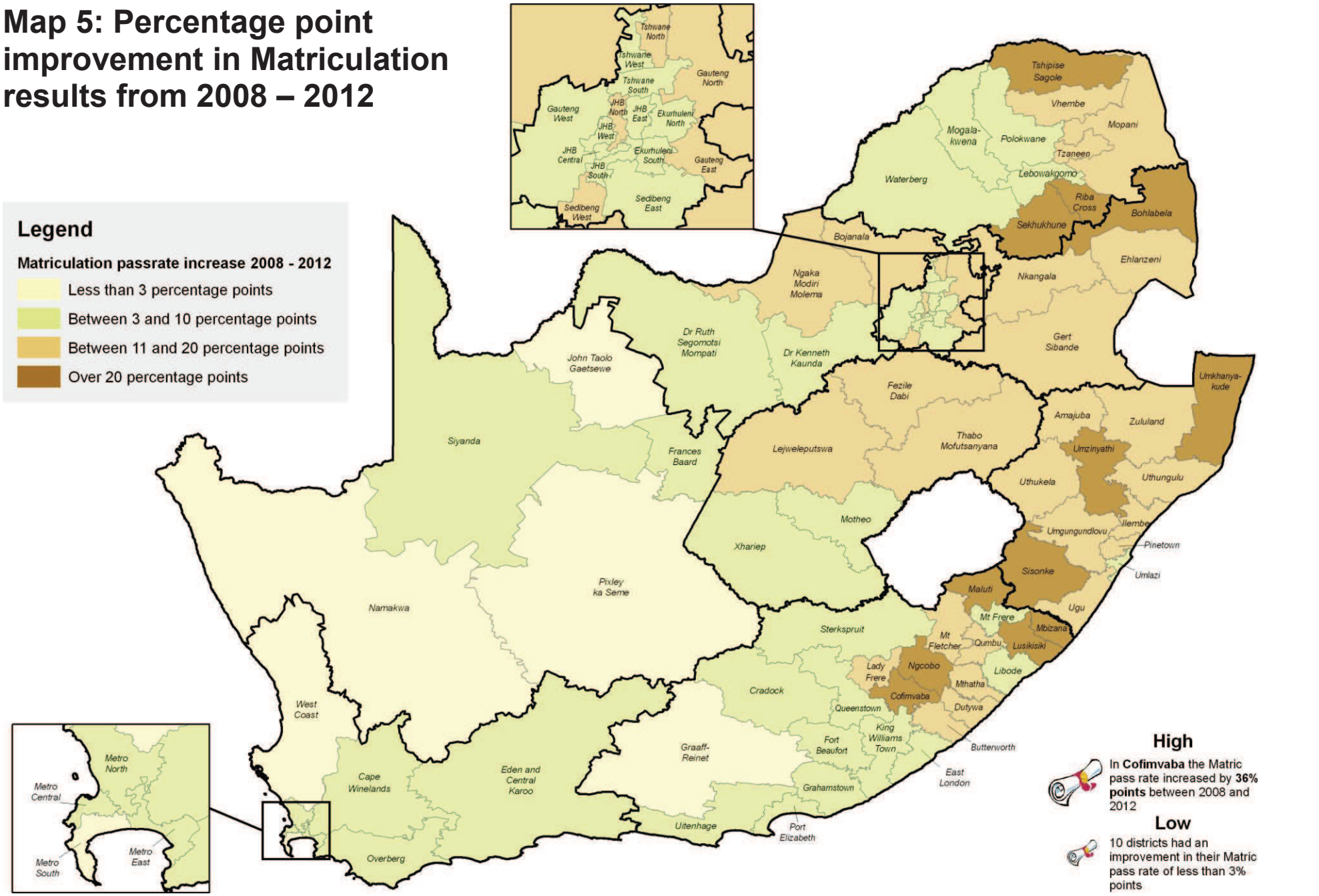
Province	Education District	Matric Pass rate 2012	Rank (1 = best pass rate) worst 10 highlighted	Passed Matric as a % of all Grade 12 learners	Learner years of effort to produce a Matric Pass
WC	Metro North	86%	10	81%	28
WC	Metro South	78%	34	74%	30
WC	Overberg	86%	11	80%	35
WC	West Coast	87%	4	81%	35
Total		70%			

Table 8: Matriculation pass rate in 2012, Matric passes in relation to enrolment and learner years of effort to produce a pass

Map 4: 2012 Matriculation results



Map 5: Percentage point improvement in Matriculation results from 2008 – 2012



2.3 'Underperforming' Schools

Table 9 below shows the number and proportion of schools per province that achieved a Matriculation pass rate of less than 40% per year from 2008 to 2012. These schools generally receive a great deal of negative attention when the Matriculation results are released, often being referred to as 'failing' or 'under-performing' schools. They may be put on a watch list and/or visited by the Education MEC in an attempt to apply pressure to improve matters.

Table 9 shows a considerable reduction in the number of schools achieving less than 40%, from a peak of 1773 in the year 2009 to 608 in 2012. The table shows that three provinces accounted for the bulk of these schools: Eastern Cape, KwaZulu-Natal and Limpopo. Numbers have come down in all provinces, but the greatest improvement in proportional terms was Gauteng, where the number dropped from 39 in 2008 to 4 in 2012, a 90% reduction. Mpumalanga and Free State both had an 80% reduction in poorly performing schools.

Province	Schools that achieved less than 50% in Matric by year				
	2008	2009	2010	2011	2012
Eastern Cape	410	391	268	241	219
Free State	22	25	17	10	4
Gauteng	39	50	20	5	4
KwaZulu-Natal	561	435	208	224	143
Limpopo	472	567	346	222	185
Mpumalanga	180	216	134	80	30
North West	42	44	12	16	12
Northern Cape	13	26	8	8	5
Western Cape	18	19	13	3	6
Total	**1 757**	**1 773**	**1 026**	**809**	**608**

Table 9: Number of schools achieving less than 40% in the Matriculation exams

The reasons why schools produce poor results are complex. Other schools that are objectively equally poor in terms of the quality of education they offer can avoid the under-performing list through various forms of gatekeeping. For this reason it is necessary to look at the number and quality of passes (as well as subject choices) in relation to total enrolment at the school, and the throughput from much earlier grades. What is not clear is the extent to which the difficulty of the exam has remained constant during this period. It would of course be tempting to attribute the decline in poorly performing schools to education department initiatives and support.

Figure 3 below shows the proportion of schools in each province that achieved less than 40% in 2012. The proportions are very low in Free State, Gauteng, Western Cape and North West. Poorly performing schools in these provinces are conspicuous and in better organised provinces likely to receive special attention. Provinces such as the Eastern Cape, Limpopo and KwaZulu-Natal face a different scenario. The numbers are very high and poorly performing schools are scattered far and wide, especially in rural areas and districts categorised as dysfunctional to start with. Almost one quarter of all secondary schools in the Eastern Cape achieved less than 40%. The challenges of dealing with this number of poorly performing schools are immense. The continuous pressure to improve results will also lead to unfortunate outcomes for many learners who, as perceived weaker candidates, may be prevented from writing the Matriculation exam in the first place.

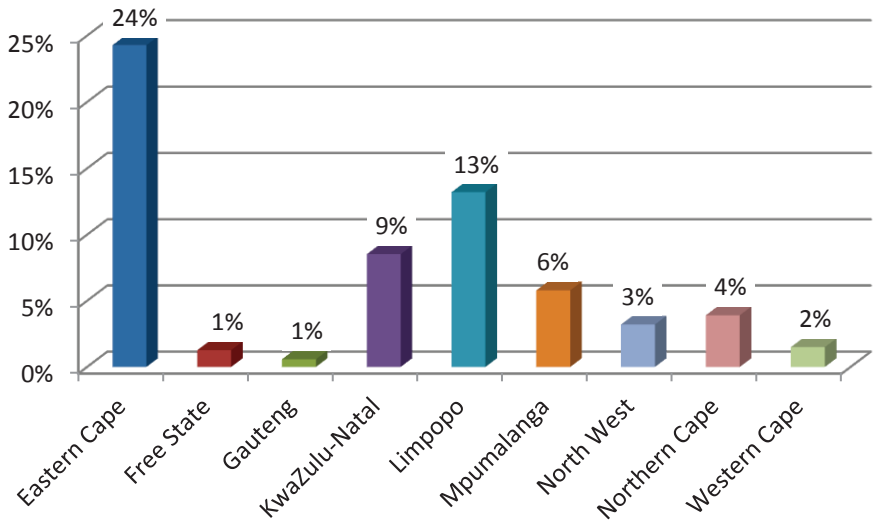


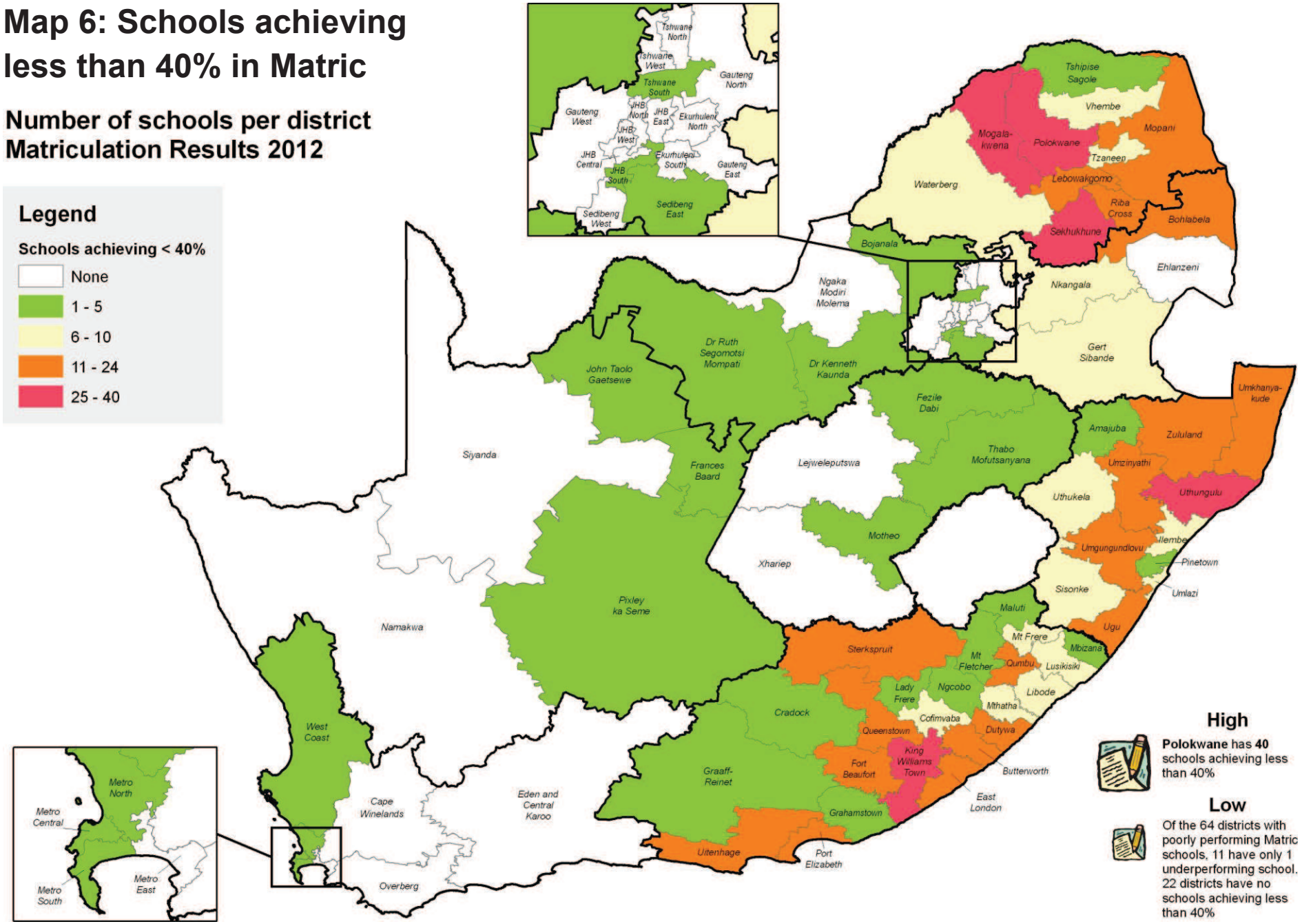
Figure 3: Percentage schools per province achieving less than 40% in the 2012 Matriculation exams

Map 6 overleaf shows the number of schools per district that achieved a Matriculation pass rate of less than 40% in 2012. Districts shaded in red are those with a high number of underperforming schools. Districts not shaded (white) are those with no schools with a pass rate below 40%.

High numbers of poorly performing schools are in districts in Limpopo, KwaZulu-Natal, the Eastern Cape and Mpumalanga. The worst district is Polokwane, which had 40 schools achieving less than 40% in 2012. Sekhukhune, Grahamstown and Mogalakwena also had more than 30 each. The worst in terms of proportion of schools that achieved less than 40% was Mogalakwena since 11% of its schools met this criterion.

Map 6: Schools achieving less than 40% in Matric

Number of schools per district Matriculation Results 2012



2.4 Subject Choices: Mathematics versus Maths Literacy

The subject choices that Matriculants make will have an effect on their future opportunities as well as on the pass rates of their respective education districts and provinces. In order to obtain a National Senior Certificate, learners must pass either Mathematic Literacy or Mathematics. To obtain a Bachelor Degree pass, learners must pass their home language at greater than 40% as well as four subjects from a designated list at greater than 40% and two subjects at a minimum of 30%. It is not, therefore a requirement that learners pass Mathematics in order to achieve a Bachelor Degree pass, unless they wish to pursue a technical subject such as engineering at college or university.

There has been considerable debate over the relative merits of Mathematics versus Maths Literacy. Some commentators have argued that Maths Literacy amounts to a 'dumbing down'[28] of the Mathematics syllabus and is not a worthwhile choice for learners. Others have argued that Maths Literacy has been unfairly stigmatised by people who do not understand what it is about[29]. They note that Maths Literacy is a subject that uses mathematical concepts, and applies them to everyday situations – it is not an alternative to Standard Grade Mathematics, but an entirely new and independent subject.

In any event, Maths Literacy will not be sufficient for learners wishing to gain acceptance into certain university courses. Learners wanting to study degrees like engineering or natural sciences will have to pass mathematics in order to qualify for university admission. There are also a number of 'non-science' related university subjects that require a Mathematics pass such as Economics, Marketing, Accounting, Information Technology, Law etc. Some learners change to Maths Literacy without realising the major impact it will have on their future study and employment prospects.

Map 7 on **Page 60** shows the proportion of all Matriculants per district that wrote Mathematics (as opposed to Maths Literacy). The dark red colour indicates districts where a high proportion of learners wrote Mathematics. The proportion of learners that write Mathematics is very much at odds with the Matriculation pass rate (shown in **Map 4**).

Education districts in the Eastern Cape have by far the highest proportion of Matriculants who wrote Mathematics as opposed to Maths Literacy. This province was also conspicuous in having the *lowest* overall Matric pass rate of all provinces in 2012. By contrast, the lowest proportion of Matriculants that wrote Mathematics was in the Northern Cape, which often tends to have one of the best Matric pass rates.

Table 10 overleaf shows the proportion of learners writing Mathematical Literacy versus Mathematics as well as the Mathematics pass rate for each district. The districts have been ranked in terms of the proportion writing Mathematics such that 1 represents the district with the highest proportion. They have also been ranked in terms of their Mathematics pass rate. The bottom 10 districts in both cases are highlighted in red.

The districts with the highest proportion of learners that write Mathematics are all in the Eastern Cape. In Mthatha, 79% of all Matriculants wrote Mathematics in 2012, in Dutywa it was 74% and in Cofimvaba it was 73%. Unfortunately, the Mathematics pass rates in these districts are also particularly poor at 42%, 33% and 50% respectively. Districts with a high proportion of learners that write Mathematics tend to have an equally high proportion that fail. Are these learners making the right subject choices? Perhaps they have been actively discouraged from taking Maths Literacy due to teaching deficiencies in this subject?

[28] Jonathan Jansen for example

[29] Robyn Clark: Maths vs. Maths Literacy: the continuing debate. Mail & Guardian, Jan 2012

In comparison with the Eastern Cape, learners in the Northern and Western Cape as well as two Gauteng districts are much more likely to write Maths Literacy, which greatly bolsters their overall Matric pass rates.

It appears that learners in both the Eastern Cape and the Northern/Western Cape may be poorly-advised. Eastern Cape learners in districts with particularly poor Mathematics pass rates should, at least in the short term, be encouraged to write Maths Literacy. Longer term these districts should of course improve Mathematics instruction. The large proportions of learners in the Northern and Western Cape who are writing Maths Literacy are probably under-stretched. A greater proportion should consider writing Mathematics, especially since it determines their prospects for tertiary study.

Note that Namakwa has the dubious distinction of having a relatively high Mathematics pass rate (65%) but also the lowest proportion of Matriculants who write Mathematics (21%) of all districts. There is clearly a very different streaming process in play in this district in comparison to Eastern Cape districts.

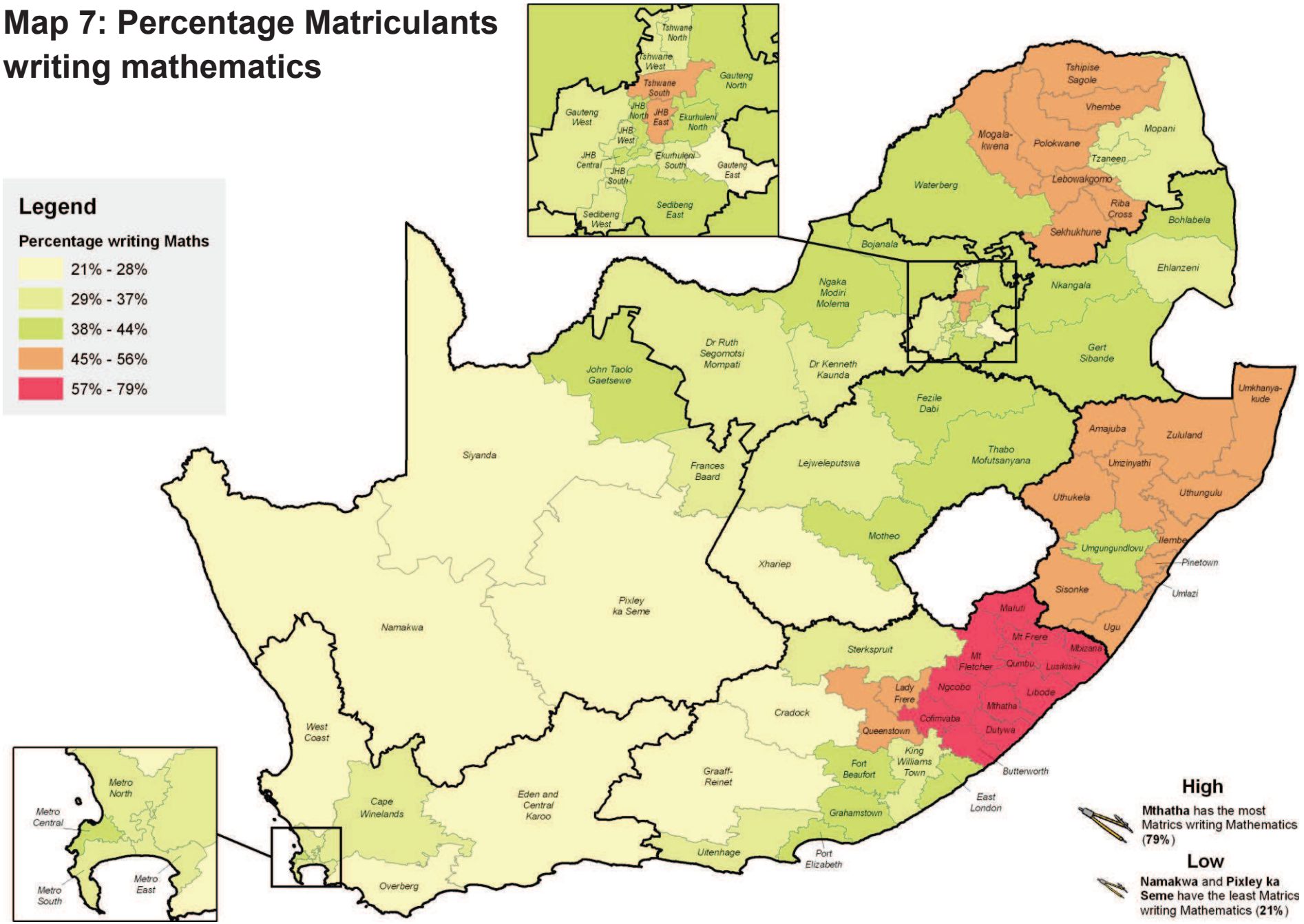
Province	Education District	Proportion who Wrote Mathematical Literacy	Proportion who Wrote Maths	Proportion writing Maths Rank (1 = highest proportion) lowest 10 highlighted	Pass rate Mathematics	Mathematics Pass Rank (1 = best) lowest 10 highlighted
EC	Butterworth	33%	67%	8	30%	82
EC	Cofimvaba	27%	73%	3	50%	56
EC	Cradock	75%	25%	82	53%	50
EC	Dutywa	26%	74%	2	33%	79
EC	East London	57%	43%	37	51%	53
EC	Fort Beaufort	61%	39%	54	32%	80
EC	Graaff-Reinet	72%	28%	78	54%	45
EC	Grahamstown	61%	39%	52	57%	43
EC	King Williams Town	64%	36%	60	39%	70
EC	Lady Frere	52%	48%	22	38%	73
EC	Libode	34%	66%	10	26%	84
EC	Lusikisiki	38%	62%	11	29%	83
EC	Maluti	32%	68%	6	41%	68
EC	Mbizana	38%	62%	12	38%	71
EC	Mt Fletcher	33%	67%	7	44%	65
EC	Mt Frere	30%	70%	5	23%	86
EC	Mthatha	21%	79%	1	42%	66
EC	Ngcobo	34%	66%	9	31%	81
EC	Port Elizabeth	58%	42%	39	54%	46
EC	Queenstown	55%	45%	33	45%	64
EC	Qumbu	28%	72%	4	25%	85
EC	Sterkspruit	63%	37%	56	33%	78

Province	Education District	Proportion who Wrote Mathematical Literacy	Proportion who Wrote Maths	Proportion writing Maths Rank (1 = highest proportion) lowest 10 highlighted	Pass rate Mathematics	Mathematics Pass Rank (1 = best) lowest 10 highlighted
EC	Uitenhage	67%	33%	68	56%	44
FS	Fezile Dabi	60%	40%	44	65%	23
FS	Lejweleputswa	63%	37%	57	64%	25
FS	Motheo	61%	39%	48	65%	24
FS	Thabo Mofutsanyana	58%	42%	40	66%	21
FS	Xhariep	78%	22%	84	58%	39
GT	Ekurhuleni North	62%	38%	55	78%	6
GT	Ekurhuleni South	69%	31%	76	68%	18
GT	Gauteng East	73%	27%	79	67%	19
GT	Gauteng North	60%	40%	47	72%	15
GT	Gauteng West	68%	32%	73	76%	7
GT	Johannesburg Central	61%	39%	51	60%	34
GT	Johannesburg East	54%	46%	28	72%	13
GT	Johannesburg North	59%	41%	42	73%	12
GT	Johannesburg South	67%	33%	69	61%	31
GT	Johannesburg West	68%	32%	74	73%	10
GT	Sedibeng East	61%	39%	53	71%	17
GT	Sedibeng West	65%	35%	65	66%	20
GT	Tshwane North	64%	36%	61	78%	5
GT	Tshwane South	50%	50%	18	81%	2
GT	Tshwane West	67%	33%	72	73%	11
KZ	Amajuba	54%	46%	29	61%	30

Province	Education District	Proportion who Wrote Mathematical Literacy	Proportion who Wrote Maths	Proportion writing Maths Rank (1 = highest proportion) lowest 10 highlighted	Pass rate Mathematics	Mathematics Pass Rank (1 = best) lowest 10 highlighted
KZ	Ilembe	51%	49%	21	36%	75
KZ	Pinetown	54%	46%	31	53%	48
KZ	Sisonke	53%	47%	24	36%	76
KZ	Ugu	54%	46%	30	45%	63
KZ	Umgungundlovu	57%	43%	36	49%	59
KZ	Umkhanyakude	54%	46%	27	38%	74
KZ	Umlazi	48%	52%	15	57%	42
KZ	Umzinyathi	49%	51%	17	50%	57
KZ	Uthukela	52%	48%	23	47%	61
KZ	Uthungulu	44%	56%	13	42%	67
KZ	Zululand	46%	54%	14	51%	55
LP	Lebowakgomo	54%	46%	26	51%	54
LP	Mogalakwena	50%	50%	19	40%	69
LP	Mopani	66%	34%	67	52%	52
LP	Polokwane	54%	46%	25	53%	51
LP	Riba Cross	55%	45%	34	49%	58
LP	Sekhukhune	51%	49%	20	46%	62
LP	Tshipise Sagole	55%	45%	32	60%	36
LP	Tzaneen	67%	33%	70	54%	47
LP	Vhembe	48%	52%	16	58%	40
LP	Waterberg	60%	40%	45	61%	29
MP	Bohlabela	60%	40%	46	35%	77
MP	Ehlanzeni	64%	36%	62	58%	41
MP	Gert Sibande	59%	41%	43	59%	37
MP	Nkangala	59%	41%	41	59%	38
NC	Frances Baard	64%	36%	63	60%	32
NC	John Taolo Gaetsewe	58%	42%	38	38%	72
NC	Namakwa	79%	21%	86	65%	22
NC	Pixley ka Seme	79%	21%	85	48%	60
NC	Siyanda	72%	28%	77	63%	27
NW	Bojanala	61%	39%	50	60%	35
NW	Dr Kenneth Kaunda	63%	37%	58	64%	26
NW	Dr Ruth Segomotsi Mompati	65%	35%	66	53%	49
NW	Ngaka Modiri Molema	61%	39%	49	60%	33
WC	Cape Winelands	67%	33%	71	79%	4
WC	Eden and Central Karoo	75%	25%	81	82%	1
WC	Metro Central	56%	44%	35	75%	8
WC	Metro East	68%	32%	75	62%	28
WC	Metro North	64%	36%	59	74%	9
WC	Metro South	65%	35%	64	71%	16
WC	Overberg	75%	25%	83	72%	14
WC	West Coast	74%	26%	80	80%	3

Table 10: Proportion of learners writing Mathematical Literacy versus Mathematics and Mathematics pass rate

Map 7: Percentage Matriculants writing mathematics



2.5 Subject Choices: Proportion of learners passing key Matric subjects

Table 11 shows the percentage of all Matriculants who wrote and passed 10 key subjects in Matric in 2012. The percentages are calculated by dividing the number of learners who passed each subject by the total number of learners who wrote Matric in that province. In the Northern Cape for example there was a total of 8 925 learners that wrote Matric in 2012. Of these, 2 864 elected to write Mathematics (32%), but only 1 572 achieved a pass. Hence the proportion of **all** Matriculants in the Northern Cape that achieved a Mathematics pass was 18%. Similarly, in Gauteng there were 89 627 learners who wrote Matric, of which 40 278 wrote Business Studies and 34 246 passed, meaning the proportion of all Matriculants that achieved a Business Studies pass in this province was 38%.

The figures provide a broad indication of provincial subject choices, as well as the significance of certain key subjects in provinces and how 'productive' provinces are in terms of particular subject passes. The Eastern Cape for example has the highest proportion of all learners that wrote mathematics in 2012 (58% – the next highest being KwaZulu-Natal with 50% – see previous section) but such a low pass rate that in the end only 22% of all Matriculants achieve a mathematics pass. Gauteng has one of the lowest proportions of Matriculants that write Maths (38%) but a relatively good pass rate amongst these, so that 27% of all Matriculants achieve a maths pass, the highest proportion of all provinces.

There are several subjects with very high variations between provinces in terms of Matriculants that write and achieve a pass. In some cases this is clearly a case of access to available teaching resources. Computer Applications Technology is a case in point. One fifth of Western Cape Matriculants achieved a pass in this subject compared to only 2% in Limpopo, yet this has more to do with the practicalities of facilities for teaching (i.e. computer laboratories) than learner performance. One or two other interesting figures present themselves. Limpopo for example is the joint top ranked province (together with Free State) in terms of percentage of all Matriculants that achieve a pass in Physical Sciences – outperforming Gauteng and the Western Cape. It also does well in Life Sciences, only being exceeded by the Western Cape. KwaZulu-Natal is the top ranked province in terms of the proportion of Matriculants that achieve a pass in Accounting and Economics.

Province	Accounting	Agricultural Sciences	Business Studies	Computer Applications Technology	Economics	Geography	History	Life Sciences	Mathematics	Physical Sciences
Eastern Cape	17%	18%	26%	6%	18%	27%	17%	39%	22%	20%
Free State	20%	5%	29%	15%	19%	27%	11%	40%	25%	24%
Gauteng	18%	1%	38%	13%	21%	32%	19%	37%	27%	23%
KwaZulu-Natal	21%	11%	35%	4%	22%	31%	16%	36%	24%	21%
Limpopo	14%	22%	17%	2%	20%	37%	11%	40%	24%	24%
Mpumalanga	13%	18%	26%	6%	17%	30%	8%	34%	21%	22%
Northern Cape	17%	6%	28%	13%	13%	34%	25%	38%	18%	15%
North West	13%	13%	27%	9%	17%	40%	15%	39%	23%	21%
Western Cape	16%	1%	30%	19%	13%	29%	25%	41%	25%	18%
South Africa	**17%**	**11%**	**30%**	**8%**	**19%**	**32%**	**16%**	**38%**	**24%**	**22%**

Table 11: Proportion of **all** Matriculants who wrote **and** passed key Matric subjects

Map 8 overleaf provides a spatial picture of the *effectiveness* of districts in producing passes in Mathematics and Science. The percentages are a derived figure indicating the relative 'productivity' of each district. This is measured as the proportion of all Matriculants and subjects taken that result in a maths or a science pass. In Cofimvaba district for example there were 1560 learners that wrote Matric. These 1 560 learners wrote a total of 11 090 subjects altogether and managed to achieve 578 maths and 504 science passes. The maths/science productivity measure is therefore (578 + 504) / 11 090 = 9.7% for this district.

Cofimvaba is an interesting case in point because it is the second most 'productive' district for this measure in South Africa, after Tshwane South which has 10%. There are some other interesting anomalies. West Coast District in the Western Cape had a Matric pass rate in 2012 of 87% and was ranked 4th overall, yet it only managed to produce 745 Maths and Science passes altogether, which in relation to all subjects taken by Matriculants was 4%, less than half of Cofimvaba, which was ranked 45th in terms of Matric results. Which district performed better in terms of potential contribution to the economy?

Map 8: Passes in maths and science as a proportion of all subjects written by Matriculants in 2012