



Introducing the PAT Performance Index (PATPI)

Earlier this year the National Education Evaluation and Development Unit (NEEDU) published a report with the title Schools that Work. The unit is a statutory body established by the Government to both monitor the performance of the Department of Basic Education (DBE) at every level, and to make recommendation for improvements. The report was based on research undertaken by the unit to better understand the factors which impact on the functionality of schools particularly in relation to learning outcomes.

As part of this research the Unit looked to identify those schools serving communities from across the socio-economic spectrum which stood apart from their peers in terms of learning outcomes. The decision was taken to use National Senior Certificate (NSC) examinations results as the measure of performance because nationally these are the only learning outcomes that are internationally benchmarked and where the testing instrument – the examination papers – are externally set, administered, marked and moderated, with the assessment process and the results approved by UMALUSI, a statutory body established to verify the quality and standard of these examinations.

The initial criterion used by the NEEDU research team to identify the top performing high schools in the country with 100 or more candidates and an NSC pass rate of 95% and above for 4 successive years. This was the modified to include additional criteria which included measures of quality and of learner retention. The full set of 7 criteria are listed below together with the weighting of each.

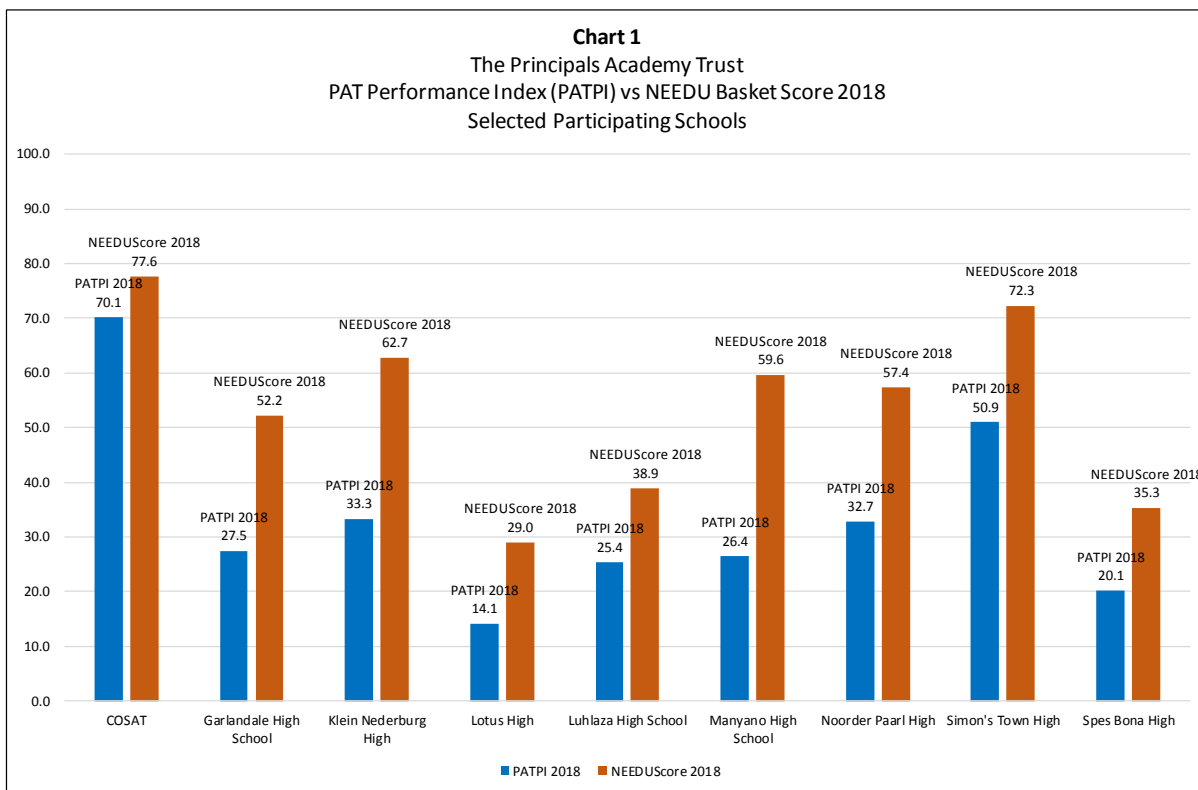
Indicator	Weighting	Factor	Final Score
Overall pass percentage	35%	0.35	35
Percentage passed Mathematics	10%	0.10	10
Percentage passed Physical Sciences	10%	0.10	10
Percentage attained Bachelor-level pass	15%	0.15	15
Percentage attained Distinction	10%	0.10	10
Mathematics participation rate	10%	0.10	10
Throughput rate (% Grade 10s passing Grade 12)	10%	0.10	10
Total	100%	1.00	100

The single score produced by the application of these criteria produced a figure which they called the “Basket score” with a Basket score of 100% reflecting excellent performance across these seven inclusive criteria. For their purpose they decided to select schools whose performance met the following criteria:

- An NSC pass rate of 95% and above for 4 consecutive years ending in 2016 when this research was undertaken
- A Basket score of 70% and above

They were able to identify 111 schools using these criteria. All 5 quintiles were represented in this group, but the decision was taken to focus their research on 100 schools from quintiles 1 to 4 as these represent schools serving this country’s less advantaged communities. In an effort to understand the factors that contributed to the high performance of these schools the research team conducted on-site inspections of these schools. Besides the inspections of the basic infrastructure and an assessment of the available resources, these visits included face-to-face interviews with the principals, teachers, learners, SGB members, parents and community members with the data gathered from this process then used to identify the factors which contributed to each school’s functionality and excellent learning outcomes.

The findings of the study resonate with the work that the PAT Mentoring team and we have used the NEEDU Basket score to assess and track the performance of the high schools with principals that we are mentoring. The great value of the Basket score is that it provides a single yet reliable and meaningful measure of learning outcomes and because of this provides a useful measure of school performance in terms of learning outcomes, over time. However, the Basket score can only be used with high schools because it is based on learner performance in the NSC examinations. We are fortunate in the Western Cape to have a second measure of learner attainment in the form of the Western Cape Education Department’s Systemic test which are used to annually assess the performance of learners in Grades 3, 6 and 9 in Language and Mathematics, in all public schools.



On the basis of the above we decided to borrow from the NEEDU Basket Score concept and create single measure of learning outcomes using the results from the Systemic Tests together with the results of the NSC examinations, in the case of high schools. This measure, which we have called the PAT Performance Index (PATPI) only uses learner performance in Language - home language in Grade 3 and the Language of Learning and Teaching (LoLT) of the school in Grades 6, 9 and 12 – and Mathematics. To ensure that this index represents a significant component representing quality outcomes, only the percentage of learners scoring 50% and more and 80% and more are included in the calculation. The table below illustrates how the PATPI is calculated for high schools, while the chart above (Chart 1) provides a comparison between the PATPI and the NEEDU Basket score for selected schools. The schools were selected on the basis of the availability of their data.

Indicator	Weighting	Factor	Final Score
Grade 9 LoLT Pass @ 50%	20%	0.20	20
Grade 9 LoLT Distinctions (80%)	5%	0.05	5
Grade 9 Mathematics Pass @ 50%	20%	0.20	20
Grade 9 Mathematics Distinctions (80%)	5%	0.05	5
NSC LoLT Pass a@ 50%	20%	0.20	20
NSC LoLT Distinctions (80%)	5%	0.05	5
NSC Mathematics Pass @ 50%	20%	0.20	20
NSC Mathematics Distinctions (80%)	5%	0.05	5
Total	100%	1.00	100

THE PRINCIPALS ACADEMY TRUST

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The performance of the high schools with principals that are or have been part of the Principals Academy Trust programme as measured by these two performance indicators are given below for purposes of comparison and to illustrate both the similarities and the differences between the two scores.

What is worth noting from the results of the schools included in this table which are ranked in order of their respective NEEDU Basket Scores is that:

- 1 The value of the NEEDU Basket Score is higher than that of the PATPI. This can be explained by the fact that the PATPI includes an assessment of learner performance in Grade 9.
- 2 The NEEDU Basket Scores of 2 of the schools - Simon's Town High School and COSAT (The Centre of Science and Technology) – would have placed them amongst the top 111 schools that the NEEDU had identified for their research. Simon's Town is a Quintile 4 former model C school while COSAT is a quintile 3 (No fee school) located in Khayelitsha.

School	PATPI 2018	NEEDU Basket Score 2018
Lotus High	14.1	29.0
Spes Bona High	20.1	35.3
Luhlaza High School	25.4	38.9
Paulus Joubert High School	19.6	43.2
Garlandale High School	26.7	52.2
Noorder Paarl High	32.7	57.4
Bellville Technical High School	45.8	59.2
Manyano High School	25.2	59.6
Klein Nederburg High	35.2	62.7
Simon's Town High	50.9	72.3
COSAT	70.1	77.6

The 3 Charts below illustrate some of the insights that the use of the PATPI can provide, particularly in terms of areas of specific weakness that the principals and their staff need to work on.

Chart 2 Compares the NSC Pass rates and the PATPI of the school for the years 2015 to 2018. The principal of the school joined the PAT programme at the start of 2015. While the school's NSC pass rate appears relatively stable in a narrow band around 90%, there is a small but steady improvement in the PATPI.

Chart 3 Illustrates the changes in 3 elements of language that are assessed in the Grade 9 Systemic language test which contribute to the PATPI. Two things are immediately apparent here.

1. The slow but steady improvement in all three elements. These will in time contribute to improved learning outcomes in the quality of school's NSC Examination results.
2. The very poor performance of learners in the critical language skills of Reading with Understanding and in Writing with meaning. Strategies to address these weaknesses are likely to significantly impact on learning outcomes in all grades.

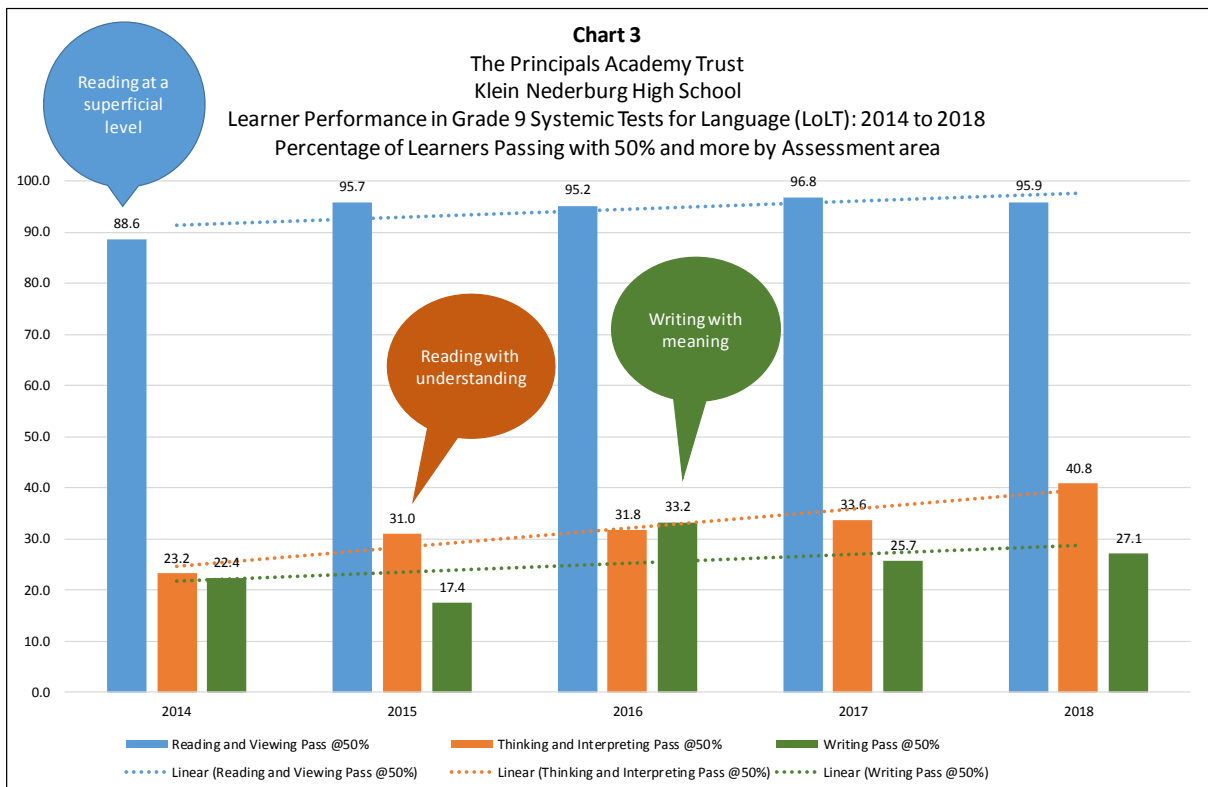
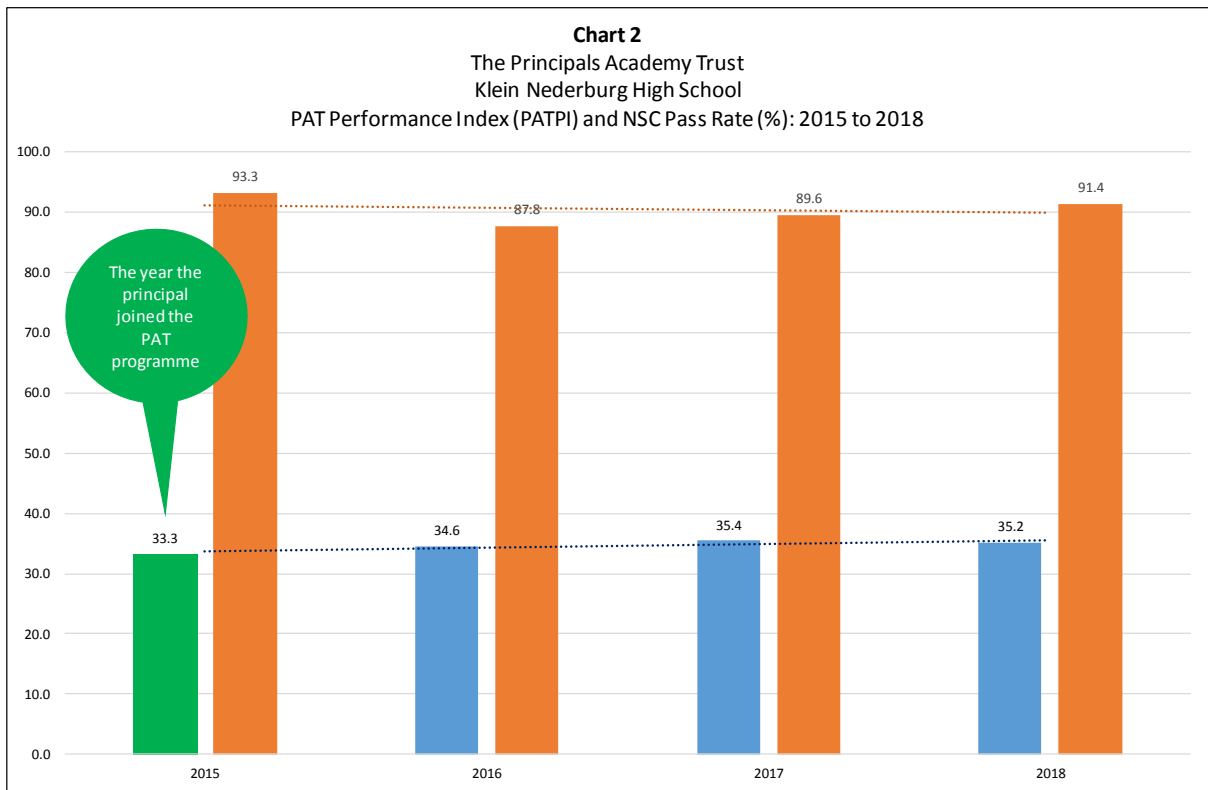
Chart 4 provides similar insights into learner weaknesses in two groups of basic mathematical operations namely Number, Operations and Relationships, and of Patterns, Functions and Algebra. These weaknesses have been identified in the Grade 9 Systemic test results and need to be addressed if the school in order for the school to provide more learners with opportunities to pursue careers in the sciences, in Medicine and in Finance.

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Chart 4
 The Principals Academy Trust
 Klein Nederburg High School
 Learner Performance in Grade 9 Systemic Tests for Mathematics: 2014 to 2018
 Percentage of Learners Passing with 50% and more by Assessment area

