

Principal Sabbatical Report Study Project 2012

Purpose

My project is to look at achievement in high decile (HD) schools in provincial New Zealand and specifically the central North Island.

In national standardised tests such as PAT the data from high decile schools is expected to be skewed to the upper end of mean average and average stanine in school achievement. The good results often lead to teachers into a situation where they can feel complacent and not sure what expectation of students should be.

My project is to see what is a realistic level of achievement in high decile classrooms? Along with the question, what difference teachers can make if students are already well above the expected norm?

The standardised measuring tool of PAT Mathematics and Reading Comprehension were the tools used to see if results are in fact skewed to HD schools. What are realistic expectations for students in these schools?

Method

My method to gather information was to;

1. Survey high decile schools in provincial north Island as to the results of their PAT Reading Comprehension and Mathematics. To look at how they deliver the test and to see what they do with the information gathered.

We stayed clear of HD schools in Wellington and Auckland. The reason for this was that HD schools in these large urban areas often have quite a different student composition with their local communities being quite different from provincial urban areas.

2. To talk to NZCER, Wellington, mainly Charles Darr as administrators of the PAT tests and to discuss their findings.

Results and Findings

A survey was given out to over twenty schools that were either decile 9 or 10 schools in the central north Island. Thanks must go to the MOE (Ministry of Education) who provided a list of schools with their addresses.

Copy of the survey in appendix 1.

Unfortunately less than 10% of the schools responded to the survey that went out by email.

I can only suppose that a survey from a colleague was low priority when principals have to prioritise tasks in their busy work life.

I therefore analysed the data given to me by the three schools and then used the data given to me from NZCER on the school data comparing decile and Reading comprehension.

One point I wanted to clarify was how accurate was the PAT assessment tests in the distribution of the stanines. Nationwide only 4% of students still achieve stanine 9 and at the other extreme only 4% score at stanine 1. (See appendix 2 on the information of distribution of stanines). According to data NZCER has received this year the distribution of stanine is consistent with the bell shape curve. The test is still providing the distribution that is to spread the stanine as to the percentages given. The norm is still decile 5 nation-wide.

General Points to Note

As with any test which is normed to the general population the larger the cohort the more accurate the distribution will be in line with the bell curve nationally. Therefore being in a high decile school does not mean that the school will not have students falling into the low stanines and that the distribution of stanine will still be a curve although skewed to a higher average. High decile schools must still expect to have a range which will be more accurate against the national norm as the number of students in a particular cohort goes up. Charles Darr stated that he had witnessed outstanding Year 2 students who are capable of achieving at year 8 level.

The challenge to high decile schools is to measure the added value or impact they have made to a students learning ability. High decile students come from a home life where they are often given plenty of opportunity to experience a wide range of activities which stimulate the brain through music, dance, debating, drama and sport outside school hours. These along with rich family experiences give the student a wider list of experiences, and therefore rich prior knowledge they can call on when answering questions in an assessment task. To help in this the PAT use the increase in the scaled score to measure progress made which results in a more formal assessment activity where rate of progress can be evaluated and therefore measure the impact of teaching and learning programmes rather than a summative mark to indicate the end result. Schools are now starting to use this system although it is still not common practice.

A myth that is common in the teaching profession is that giving the children coaching in taking a multiple choice test will help them achieve a high mark. This is not the case, NZCER encourage teachers to teach the students how to take the test before the time, especially if it is the students first time so that it takes the mystery out of the activity. Many a teacher has tried in days gone past to use expression when reading scripts in the listening test (it is now mainly recorded) to emphasis the correct answer to no real impact.

NZCER emphasise that a PAT is only a tool and that there can be a variation to the outcome due to a number of factors from health to circumstances that occurred before going into a test situation. Teachers cannot hang too much on the one test. Teachers need to gather a range of information on a student, a dossier through the gathered information from a range of tests, performance in books, discussions and observations over time to measure over all progress and achievement are the most effective way to give a true indication on an individual's achievement.

For this reason NZCER are encouraging teachers to develop progress maps of their students as they progress academically and to use the PAT as a default tool to check those children whose results may be in doubt for need clarifying and not to use the PAT as a be all and end all of an assessment of a child's ability against the national standards. This is in line with the NCEA where the end of year external assessment is measured alongside the work done during the year. This process also allows tracking and the automatic moderation of the schools grading of students internal assessment.

More schools are now using the raw score of the PAT tests to measure the rate of progress of students. If a scaled score does not progress upwards or not by the calculated margin then the student has either stagnated or slipped behind. This is important for all schools. However for HD schools like Havelock North Primary we can now have hard data to answer the question as to what impact we are making on a child's learning.

Decile Vs. Achievement

Yes achievement data does go up with the decile of the school. NZCER results on the next page show the spread of achievement against the decile of the school, and the achievement through the mean score, for reading comprehension, for 2012.

The quintile levels are the grouping of schools by pairing decile rating. Quintile one refers to decile one and two schools and quintile five refers to decile nine and ten schools.

NZCER has not developed any other comparison in decile and achievement but intend to do so in the near future.

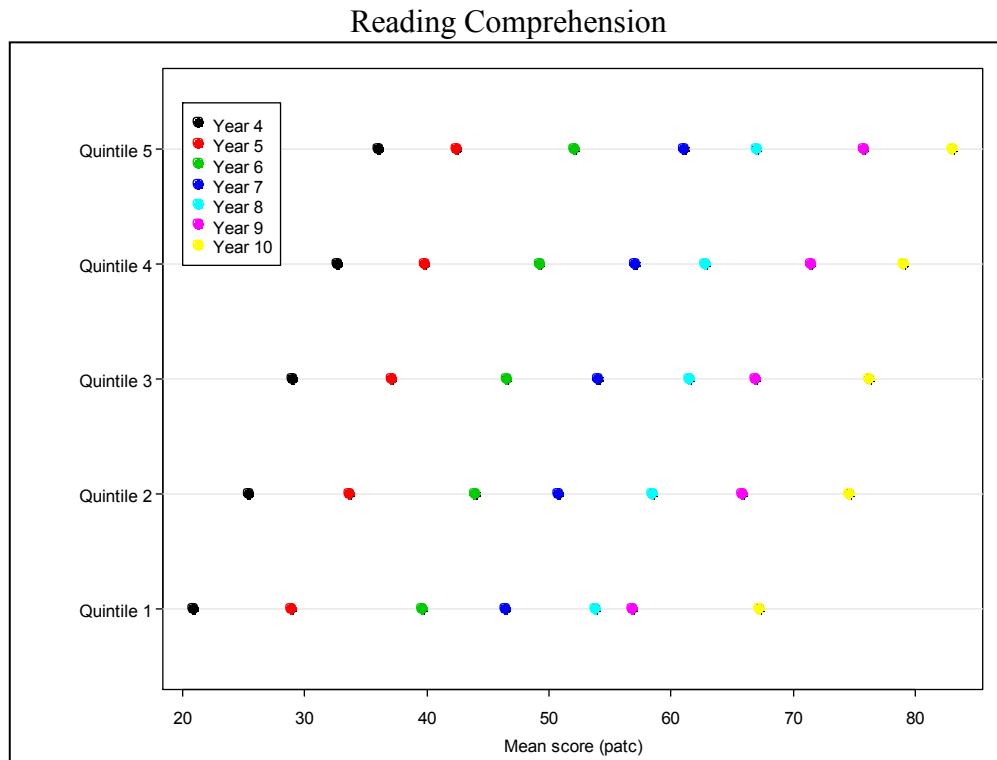
It is worthy note that the sample is over 2000 students at each year level at the high decile quintile 5 but only 65% of that number at quintile 1, or decile 1 and 2 students. As the data has been collected over a month it may mean that higher decile schools track by testing rather than lower decile schools who do not wish to put students through a situation where they struggle and get negative response.

By following the dots of the different year group we can see that across all year groups from year 4 to year 10 all achieve at a higher rate which means that from an early age students at high decile schools achieve at a much higher rate, and this continues for a long period of time, six years. We must take into consideration that the data at year 9 and year 10 is based on far less numbers but the trend is still fairly consistent with previous year groups.

Finally when reading this graph we need to acknowledge that the standard deviation is quite large, 12 points which means marks can vary 6 points either side of the mark.

Reading comprehension performance

The graphic below shows how student achievement on PAT Reading Comprehension differs across quintile groups across year levels. The data has been extracted from data collected by NZCER over a one month period.



There is comparatively very little data for Year 9 and 10 to work with, so Year 9 and 10 results should be considered much less reliable.

	4	5	6	7	8	9	10
[1,]	1263	1328	1426	1237	1189	94	136
[2,]	1135	1211	1318	1387	1327	136	181
[3,]	1187	1258	1328	1846	1824	195	266
[4,]	1323	1398	1501	1665	1549	195	265
[5,]	2033	2099	2274	2108	1995	210	291

The table above shows the number of students selected at each year level for this analysis. The sample has been tailored to be nationally representative across quintiles. A bootstrapping method was used to calculate overall means and standard deviations.

	mean	sd
Year 4	29.7	15.6
Year 5	37.1	12.8
Year 6	47.0	12.2
Year 7	54.7	12.8
Year 8	61.5	11.4
Year 9	68.9	12.7
Year 10	77.3	11.5

Havelock North Data

Reading Comprehension 2012

Cohort Level	Mean Score: Nat/ High Decile/ School			Variation
Year 4	28.8	34	34.8	+ 6 Nat +.8 on high decile norm
Year 5	35.8	43.0	44.4	+8.6Nat +1.4 on high decile norm
Year 6	45.0	51.5	50.4	+5 Nat -1 on high decile norm

Havelock North data shows that we are within two marks of the National norm for high decile schools, decile 9 and 10. This I assume means that we are on track in comparison to other schools of our decile but that we could still do better and endeavour to strive higher, to be plus 6 on the score and to be at the higher end of the standard deviation. Our year 6 cohort is slightly below our other two cohorts and we need to realise not all cohorts achieve at the same level and transient children can make a difference.

Cohort size also has an impact on our mean average. Our year 6 cohort has 80 students where our year 5 cohort has only 55 in number which is only 68% of the year 6 students and so is less reliable sample to compare to other larger numbers.

Conclusions

Yes high decile schools do have higher levels of attainment.

This doesn't mean that high decile schools will not have students who struggle to achieve.

Havelock North Primary is achieving at expected levels when we are compared with similar decile schools but we must always strive to do better. Failure to do this will result in the possibility of us slipping backwards.

We may be behind smaller HD schools due to more homogenous population but we have cohorts which are large in number giving more variety of student ability, and background.

HD Schools need to look at using the scaled score from year to year to look at the improvement made each year to see what difference has been made, and to see what impact the school has on the progress of students..

Acknowledgements

I wish to thank Charles Darr from NZCER for all his support and professional discussions.

I thank my Board of Trustees at Havelock North Primary for this opportunity to study for my project.

I wish to thank the staff who kept on track and continued to progress the school in my absence.

Appendices

Appendix 1 Survey sent out

Principals Sabbatical Leave Project

How good is Good.

Greetings Principal

My name is Paul Bremer and I am principal of Havelock North Primary.

You have been selected as a Provincial North Island high decile (decile 8 to 10) Composite or Full Primary School.

My research project is to look at how good is good. As a member of a high decile cluster of schools involved in an EHSAS project up until December 09, we had a presentation with Charles Darr (NZCER) where he spoke of the strong correlation between decile and the level of achievement.

With the introduction of national standards, we are seeing similar patterns to those in standardised tests such as PAT, STAR and Astle, where our achievement profiles are skewed to the higher deciles, sometimes making it difficult to identify areas for improvement and to convince teachers that there is a moral purpose for change.

To this purpose I am conducting a survey of provincial high decile schools where the situation is similar to Havelock North Primary.

Specifically to see if

- 1) Data shows that achievement is related to high decile.
- 2) That with nationalised tests the stanine is set for a national norm across the country and as a result there must be some limit to the level of achievement. Too great a stanine average must skew the national stanine spread, or other schools are well below the average stanine of 5.

To this end I would like to use the most common national tests, that being PAT Comprehension and PAT Mathematics as a measure how good is good.

Could you please answer the following survey and email back to me.

I will also be asking questions of Charles Darr at NZCER as to what patterns he has discovered and the trends after administering the PAT tests for a few years.

When I present my report I will send a copy to you. I would also like to send you a scratchie card and hope you are a winner. Thank you for your time in what is always a busy and demanding job

Survey

School Name----- U-grade-----

1. Do you use the PAT tests of Comprehension and Mathematics to help your teachers make their OTJ on your student's achievement and progress? (If not go to question at the end of the survey)
2. How do you administer the PAT tests? Do you give it at the beginning of the year, midyear, or end of year, or a combination of the mentioned?
3. Do you go to Wellington NZCER to mark the papers?
4. If you mark your own do you process the results to gain mean stanine for your school?
5. Do all your teachers teach skills to take a multiple choice test and if so what skills do you specifically teach them
6. What are the average stanine results in the PAT test for Reading Comprehension by cohort for the last 3 years at your school?

Year	Year 4 cohort	Year 5 cohort	Year 6 cohort
2012			
2011			
2010			

7 What are the average stanine results in the PAT test for Mathematics by cohort for the last 3 years at your school?

Year	Year 4 cohort	Year 5 cohort	Year 6 cohort
2012			
2011			
2010			

8 Do you measure the rate of progress of individuals?

9 How do you use the PAT test to identify next steps for your school,

staff

and student development.

10 What other national tests do you use to help the teachers make an OTJ on student achievement.

Thank you

Paul Bremer

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