

Who achieves what in secondary schooling? A conceptual and empirical analysis

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Executive summary

This study aims to answer a series of questions relating to the currently popular political discourse that one in five students are failing in secondary school. Key questions include:

- What are the benchmarks of success used in various contexts?
- Who reaches these benchmarks, and who does not?
- What are the characteristics of those who do not achieve the benchmarks?
- How have these changed in recent years?
- To what extent do New Zealand schools mitigate the effects of socio-economic disadvantage ?
- How does this compare internationally? And,
- Is it true that one in five students are failing?

This report aims to answer these questions by examining assessment systems, and definitions of success and failure, from multiple perspectives: historically, internationally, through the current NZ assessment model, from the perspective of the OCED's PISA findings (in terms of definitions of success and failure, socio-economic gaps and educational achievement, schools and teachers and policy implications), and in summary.

An historical overview of New Zealand's school assessment policies demonstrate that success and failure are not embodied in individual students, but are an artefact of policies of school provision, access and assessment which vary from time to time. Key findings of this section include:

- In New Zealand, assessment policies and practices have traditionally acted as forms of selection, differentiation and rationing. In particular, prior to NCEA they acted to maintain the existing social order by ensuring that assessment systems valued and rewarded the practice of dominant groups.
- Because school qualifications are valued, all social groups aspire to achieve them. Grade inflation was particularly evident during the early years of schooling in New Zealand, and in the proficiency examination in particular.

However, where grade inflation is linked to real increases in performance, this increases skills and knowledge in society.

- New Zealand's school assessment system has changed from norm-based to criterion and standards-based. In the norm-based School Certificate era, pass rates were rigidly controlled, and it is clear, in retrospect, were held down artificially.
- In the NCEA environment, while elements of differentiation remain, for example in the form of grades and endorsements, rationing has, largely, disappeared. In theory, everyone can 'succeed', with a current political target of 85% at Level 2 of NCEA. Pass rates at NCEA Levels 1, 2 and 3 have steadily increased since their introduction in 2002 - 2004.
- Some elite state and private secondary schools undertake second-tier rationing and finer-grained differentiation, by (a) adopting different assessment systems, such as Cambridge International Examinations, or (b) valuing only particular NCEA outputs.
- The higher the NCEA pass rates, the more the pressure for rationing and differentiation at the top is likely to increase.

Looking internationally, assessment systems are intended to provide useful knowledge and skills for further education, employment and society, and in recent times to provide a means for success for greater numbers of students. There is a wide variety of ways in which schooling systems work to meet those goals.

- The English system of assessment is the subject of strong political debate currently, with a failed attempt in 2012 to shift back to a highly prescriptive norm-referenced system. The argument was that pass rates in the GCSE examination were rising despite no corresponding improvement on international tests of student achievement. The question of whether there will be any major changes to the system is currently unresolved.
- The Australian schooling system is run at the state level, and there are eight different assessment authorities. Nevertheless, the systems are quite similar to one another.
- The Victorian state system is typical. It is a highly flexible, multi-level system offering a very wide range of academic and/or vocational options. Passing at a level involves receiving a 'satisfactory' endorsement. There are no merit grades. Around 77% successfully completed year 12 (final year of schooling) in 2005.
- Around half of indigenous students in Australia complete year 12. PISA figures from 2009 show that indigenous students are concentrated at the

lower levels of PISA rankings to a far great extent than New Zealand Māori. Almost 40% of indigenous students performed below level two on the PISA proficiency measure (compared to 25% Māori in NZ).

- Other systems such as the USA, Canada and Finland also adopt broad-ranging routes to school completion, with pass rates ranging from 66-85%.

The current National Certificate of Educational Achievement is discussed. Since inception, the number of students achieving NCEA certificates at every level has increased each year. An increase in the range and scope of subjects, coupled with more effective methods of assessment, have led these changes. However, social, ethnic and gender gaps in achievement remain.

- There is a large gender gap throughout the assessment system. Boys are less likely to attempt and less likely to achieve NCEA assessment. Only a third of boys attempting NCEA1 will achieve NCEA3 two years later, compared to nearly half of all girls.
- Māori and Pasifika students have been catching up ever since the NCEA replaced School Certificate, but a gap of around 20 percentage points continues at NCEA2.

For the government's target of 85% of students to achieve NCEA2 by 2017, all groups, but especially males and Māori/Pasifika students, will require a large increase in success rates.

The following section outlines approaches to defining educational success and failure in the OCED's PISA 2009 study, and their implications for New Zealand.

- Educational performance at school, however defined, is correlated with a range of social and economic indicators across countries and time.
- Many countries have been making efforts to improve the performance of children from low socio-economic backgrounds. This is made more complicated where, as in New Zealand, socio-economic inequality has increased markedly over time.
- Nevertheless, New Zealand's performance on the PISA 2009 exercise was among the best in the world.
- An analysis based on the population divided into quarters by the OECD ESCS index (of socio-economic status) shows that New Zealand's performance was at the very top of the top ESCS quartile of results, and sixth at the bottom quartile.

- There is a reading gap equivalent to approx. 2.5 years between the mean of the top and bottom quartile, which is the eighth highest gap. New Zealand's readers performed well across the socio-economic spectrum.
- A second analytical approach is based on the analysis of variance from the mean, at the 10th, 25th, 50th, 75th and 90th percentiles. This method demonstrates that New Zealand readers have a wider range of PISA reading scores at the bottom than the top of the continuum. Despite these relatively large gaps, New Zealand's performance at the 10th percentile (the bottom measure) is well above the OECD average.
- The difference between the two scales reveals that factors other than socio-economic influence the distribution, the obvious one being the highly skewed gender distribution.
- A third approach is the so-called social gradient approach. This measures the reading score gap generated by a one-point change in the ESCS index of socio-economic status. At 52 points, New Zealand has the highest such gap in the OECD. The gap reflects New Zealand's relatively high level of income inequality, our strong performance at the top of the scale and other factors.

It is clear that socio-economic factors are important indicators of performance at school, both in New Zealand and all other countries. These are considered in three ways: through a 'gap analysis', an investigation of the social characteristics of those performing below level two of the PISA reading scale, and by a brief consideration of the characteristics of our very top achievers on PISA reading in 2009.

- A number of socio-economic indicators are considered in the section that correlate with gaps in reading performance on the PISA test of reading. New Zealand and international indicators are also compared.
- The largest gap is for number of books in the home. The number of books in the home provides possibly the strongest indicator of reading performance.
- Another very high indicator is educational costs, the amount that parents spend on schooling for their children.
- Other factors include parental income, work status, use of home computer, frequency of homework and number of bathrooms in the home. Some of these factors are proxies for socio-economic status.
- 14.3% of students failed to achieve proficiency level 2 on PISA reading. Important differences are observed between this group and the overall sample on the characteristics of household income, ethnicity, gender, books in home, approaches to learning and other factors. Differences are not apparent on ECE attendance, attitude towards schooling and views of teachers.

- Seven students scored on average more than 750 points on the PISA scale. The characteristics of this astonishing group is examined by developing an account of a composite but fictional character, Anna.

Volume four of the 2009 PISA report considers the implications of the findings of the study. By comparing information derived from students, including rankings on performance, from parents and from schools, plus information provided by national organisations on the structure and focus of schooling, the OECD is able to make comments about what constitutes an effective schooling system in practice, based on empirical analysis. The findings of this report are highly interesting and relevant to New Zealand, but have been subject to no analysis at all by the Ministry of Education. There is a first attempt here, in sections on schools and teachers and policy implications, to consider the implications of the PISA policy analysis for New Zealand schools. Key points are:

- The Ministry and Minister of Education have interpreted recent reports on New Zealand's educational performance to mean that schools and teachers are not serving Māori and other disadvantaged students properly, but the findings of the PISA 2009 report do not support such an interpretation.
- Successful schools according to PISA are those that provide autonomy and the authority for schools to make decisions about curricula and assessments.
- A high level of investment in schools and teachers is also effective.
- Good schools are socially mixed, able to offer opportunities to all and keep children in school, in class and learning.
- New Zealand does well on some of these features but not on others. Some recent programmes have begun to support teachers to work with students with behavioural problems and Māori and Pasifika students.
- Some school systems have students start school at age 6 or 7. Only a minority start at 5. Also, some systems that are effective have shorter school days and a shorter year. There is no one 'rule' or definitive relationship between the amount of time children spend at school and learning outcomes.
- Good assessment policies make a small positive difference to learning, when linked to educational progression. But standardised testing unlinked to progression makes no difference. PISA findings demonstrate that NZ schools are above average in monitoring student progress.
- PISA is not just about ranking countries on educational tasks, but about developing good policies to promote educational achievement.

- Recommended school policies include a strong, collegial, autonomous, diverse school system with good governance and well-paid teachers (as a priority).
- School choice and competition do not systematically produce better results, and put low-performing groups at risk.
- There has been an international shift away from choice and competition as key solutions to schooling, towards a more inclusive and democratic model.
- The key policy agenda in New Zealand is to increase achievement rates at NCEA level 2 to 85% by 2017. This is an ambitious target, and has never been achieved in New Zealand.
- The policy pathways to achieving this target are generally broad and unclear, but some effective programmes are now available in schools.
- New Zealand has a very good schooling system – high performance at moderate cost.
- School funding in New Zealand is remarkably low in international terms, and NZ has funding far lower than its comparator schools. Price per PISA point, at \$US92, is only 2/3 of Australia's and half of the UK's.
- PISA recommends social policy agendas be introduced where inequalities are high, which meshes with the child poverty work being undertaken at present in New Zealand.
- The findings of the Expert Panel on Child Poverty should be studied alongside the PISA findings because educational under-achievement is closely related to social and economic factors, in New Zealand and other countries.
- Private schools perform at about the same level as public schools once socio-economic factors are controlled for.
- Age of starting school, length of the school day and year and similar policies should be the subject of debate, and may provide opportunities for different sorts of learning.
- Public/private partnerships offer no systematic improvement that can be observed.

In conclusion, it is found that definitions of success and failure in the schooling system vary enormously over time and across different contexts. In New Zealand, the adoption of the NCEA has provided the opportunity to improve learning outcomes in the senior school. The 2009 PISA results confirm that New Zealand has

one of the best schooling systems in the world, and provides certainty that over 85% of students in school at age 16 have the skills to live and work effectively in our society.