

North Rocks Poaching College

Independent Review of Science and Mathematics Teaching

featuring: Spotlight on Selective Schools

May-July 2016

Abbreviations

AMC	Australian Mathematics Competition
AMT	Australian Mathematics Trust
ANSWER	Alternate New South Wales Education Review
ARSE	Annual Review Science Examination
ASI	Australian Science Innovations
ASOE	Australian Science Olympiad Examination[s]
ATAR	Australian Tertiary Admission Rank
FAST	Free Accelerated Science Tutorial[s]
FEATURE	Free Engineering And Technology University-Ready Education
FLAME[S]	Free Logic And Mathematics Education [Service]
G&T	Gifted and Talented
HSC	Higher School Certificate
MANIFOLD	Major Area Needing Improvement For Optimal Learning Development
NQE	National Qualifying Examination
NRPC	North Rocks Poaching College
NSW	New South Wales
PhUQ[ER]	Physics Unification Question [Equation Rearranger]
SHYT	Science Half-Yearly Test
SRP	Student Research Project
STEM	Science, Technology, Engineering, Mathematics
T5	Textbook Teaching To The Test
UAI	Universities Admission Index

Disclaimer

This is a work of alternate history fiction, and any resemblance to known history should be checked and corroborated with actual evidence. The ANSWER is out there, now: it's looking for students, and it will find them if they want it to.

Summary

1. Introduction

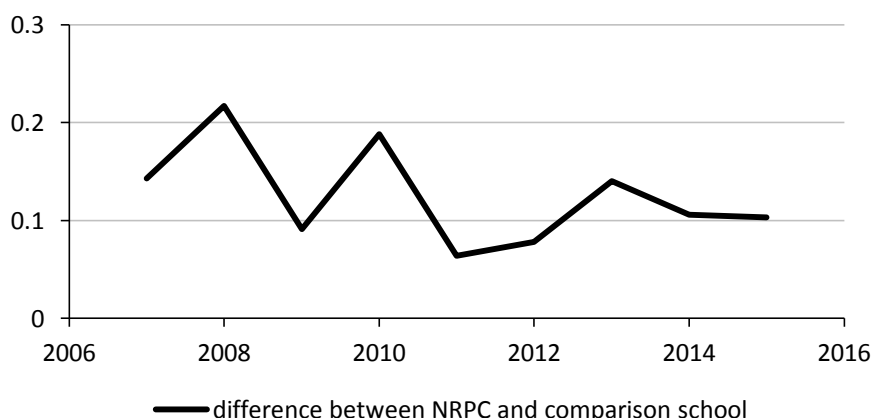
North Rocks Poaching College is a school in north-western Sydney that boasts an impressive academic track record, with leading NSW HSC results for the past 20 consecutive years. The school already receives the leading students to begin with, and merely acts as a concentrator for high-achieving students who would do well no matter which school they went to. NRPC takes achievement aggregation one step further through the use of a special technique known as “poaching”.

2. Context of this Review

Recent years have seen a reversal of many of the trends underlying NRPC success. We have discovered several concerning developments and indicators that point to a decline in standards and expectations at the school, with grave implications for students

3. HSC Results

NRPC performance in the NSW HSC climbed steadily in the 1990s, reaching an apogee in the 2000s. Into the 2010s, HSC performance has remained virtually unchanged. Despite the lack of an obvious significant trend, numbers do seem to have decreased over the years. As we continue the analysis, we will find that this pattern shows up again and again.



Dominance in the HSC has led to the school gaining a reputation as an “ATAR factory”, generating university admissions to the most highly-sought university degrees but devoid of any other purpose. The majority of graduates from NRPC will apply to study medicine at university, and close to half of them will in fact become medical practitioners. Most of the remainder will study and later practice law.

We take a look at how NRPC stays far ahead of the pack in the HSC.

Selection Bias. NRPC receives the most and the strongest selective schools applicants each year. It should surprise few readers that any school which receives the students who are already leading their cohort, would go on to produce students who are leading their cohort. Good students will do well no matter what. To make more valid comparisons between different schools, we need a reliable measure of “value added” by a school. Such a measure remains elusive, because of limitations in assessment frameworks, the absence of appropriately skilled educational researchers, and a lack of cooperation that is forthcoming from the schools.

Poaching. Poaching refers to the acquisition of leading students from other high schools, a move that directly reduces the performance of competing schools, while boosting NRPC performance.

Coaching. After wasting their primary school life at coaching for selective school entry, students continue to subscribe to such substitutes for good education. Coaching establishments utilise selection bias to manufacture outstanding results. Perhaps students and their caregivers do not realise that teachers and schools exist, for the purpose of educating students. However, if these systems are failing, it makes obvious sense to anyone who is a caregiver of a leading selective school student, that the student needs a private tutor. Because some of these private tutors actually do help their students perform better, it allows schools and teachers to get away with providing substandard education. A recent review found that private tuition incurs costs 30 times that of attending school, while coaching is 20 times as expensive as school.

Ceiling Effects. These relate to the limitations of tests in measuring performance above a certain target level. Consequences include underestimation of true ability (“clipping”), and failure to distinguish top achievers (“saturation”). When high-end test results are saturated, most of the variation between students is due to noise: for example carelessness, illness or personal crisis. Educational staff amplify this spurious variation, demanding an unreasonable level of detail that was previously uncalled for. This generates a focus on perfection and exact memorisation, lowering the level of cognitive function demanded of students. This obsession, with getting answers exactly the way that some arbitrary assessor wants them, generates significant anxiety — and the prevalence of mental health problems has risen to unprecedented levels at NRPC.

Aliasing. A paradoxical effect whereby measured performance drops, as actual ability climbs past the upper bound of the assessment. “Gifted underachievement” happens through a variety of causes, but this is spurious underachievement, with unfortunately real consequences. As students grow past the limitations of a test, more of their answers will be better than their dim and inflexible assessors can handle. Unintelligent and recalcitrant teachers, stuck in their little worlds, unhelpfully insist on memorisation and recall of simplistic ideas. A similar but converse phenomenon also occurs, where the actual ability of students drops as they seek to optimise their performance in a low-level assessment. Students who have previously progressed past the rote-learning and recital stages, now go backwards to focus on the important parts of their tests: excessive detail and exact memorisation.

4. Alternative (Better) Measures of Performance

We shall settle for independently-posed competitions that are cast to a wide audience, in particular: the ASOE, and the AMC.

Australian Science Olympiad Examination[s] (ASOE). “The Australian Science Olympiad Competition is a national extension program for top performing secondary science students which culminate [sic] in the International Science Olympiads – the Olympic Games for science students.”

History. Students compete in the ASOE (formerly NQE) for each Olympiad, for a place at each corresponding Summer School. Following this, 4 or 5 international team members for each science are selected, to represent Australia in the International Science Olympiads. In 1994, ASO coverage extended to all 3 major sciences (physics, chemistry, biology), and these are the ones we use data for.

Selection of Data. We will use training school and team representation as data for our analysis, because total numbers for these have remained mostly stable over time. Approximately 20 students qualify for the summer training school per science per year. Of these, 5 international team members are selected from the physics training school, and 4 team members are selected from each of the chemistry and biology training schools. NRPC archives and internal science department documents were cross-checked with the ASI Honour Roll to ensure integrity of the analysis.

Australian Mathematics Competition (AMC). The AMC is a very popular annual competition with an annual participation of approximately 500 000 students. Monetary prizes are awarded to the top approximately 0.3% of students in each region at each year level.

History. Information pages explicitly state when changes to the marking scheme occurred: there should be no sudden unexpected and undocumented alterations.

Selection of Data. NRPC archives contain a patchy record of AMC prize count over 24 years, and more-complete records of the full range of awards over 9 years.

5. Review :: Science

Activities, Attitudes and Morale. ANSWER agents were able to perform extensive data collection and observational studies. They found a sad reality where remediation was necessary just to reach a level where extension could begin. Many attitudes were seemingly inconsistent with the needs of what should be gifted and talented students. We consider 5 major areas needing improvement (“manifolds”):

- (A) avoidance of accountability;
- (B) bull-sewage and bullying;
- (C) chasing and claiming credit;
- (D) dimness, dullness, density, disadvantage and developmental delay; and
- (E) excuses, not enrichment.

Avoidance of Accountability. Staff at an educational facility should be held to account for the quality and quantity of the educational service that they provide. One of the ironies of education at NRPC is that teachers have to do nothing in the way of education for the students, and will still be carried to the top of the HSC ranks. This section deals with active avoidance of accountability: intentionally failing to provide an adequate education.

Assessment. The 2015 science half-yearly test (SHYT) was filled with spectacular and embarrassing editorial failures. We were unable to identify the individual teachers who were responsible for these, because of a mysterious policy that all teachers would be required to participate in writing and marking assessment tasks, but there should be no indicators of who wrote or edited which parts. This is a brilliant strategy for diffusing responsibility and sharing blame.

Classroom Teaching. To assess the effectiveness of classroom teaching by each teacher, we look at the way that teachers react to the contents of and results from assessment tasks. When students are given an assessment task, their results depend in part on their classroom experience, and so teachers feel challenged as stakeholders in this process as well. In recent years there have been outstanding complaints from teachers that questions or tasks are “too hard” or “not in the syllabus”. Teachers are loudest when the assessment tasks refer to topics that the particular teacher has not covered in class yet, or has not covered at all because the teacher is incapable of teaching them. Many of these teachers are less able to solve such problems than the students that they teach. Faced with this very real threat of being shown to be incompetent by having their students challenged, these teachers do exactly what we would predict: try to prevent their students from being challenged. NRPC should have the most intellectually capable students, so if they are not comfortable with higher intellectual challenges, that raises important questions. The detrimental “teaching to the test” approach is prominent, but it enables us to point to a specific line in the syllabus for every single thing that we teach, and match it to the corresponding question in the assessment task. How much more accountable can you get?

Accountability: Discussion. Accountability is one of the mechanisms by which organisations maintain integrity. It is unclear why the executive have lightened the requirement for accountability. Do they realise that once they lower the fence, they are simply inviting trouble that will be far more evil than they are? To avoid accountability, the following strategies may be implemented.

- Diffuse responsibility by involving every teacher, but identify none of them.
- Use the T5 method to produce more data storage media from students.
- Refuse to provide or endorse class work or assessment tasks that are more difficult than the least capable teacher can handle.
- Exclude challenging components of assessment tasks (“dumbing down”), thereby increasing average reported student marks (“prettifying up”).
- Keep treating students as too stupid to realise that increasing the marks that everyone gets, will not affect their relative ranks.

Students become complacent, and eventually too stupid to realise that it is through being challenged that they will improve the most.

Accountability: The Future. Independent externally-written assessment tasks would resolve many of these problems. Objective assessments would provide meaningful and very informative results. In the form of independent externally-written competitions, they certainly do.

Bull-Sewage and Bullying. Most of the sewage produced at the school does not originate from the farm. One example is in assertions about wellbeing at NRPC, where irony arises when senior, more-“experienced” staff use student wellbeing as a justification for bullying

junior, less-“experienced” teachers over assessment task setting and marking. Understandably, junior teachers expect students at a school like NRPC to be able to cope with difficult and challenging tasks. Senior, more-“experienced” teachers reject those contributions out of hand, citing excess difficulty and the need to “encourage” students with insultingly easy questions. Giving students insultingly easy tasks prepares them poorly for difficulties and challenges in the real world — a similar argument leads us to conclude that athletes find it too much of a physical challenge to get up and exercise. Senior, more-“experienced” teachers are also routinely dismissive of innovative ideas from junior teachers, but when the ideas become resounding success, the “been there, done that” gang show up and say “see, this was our idea all along!”.

Chasing and Claiming Credit. Many staff are ready to, and indeed make directed efforts to, take the credit for the work of others — a practice also referred to as “poaching”. Teachers who are unwilling or unable to produce quality work of their own are well-represented at NRPC. The flip side of the lack of transparency is that anyone can simply come along and claim that work is their own.

Plagiarism. Many teachers simply steal resources and pass them off as their own. Serious educational institutions consider this to be academic misconduct. Science Department bookshelves, drawers and filing cabinets are overflowing with plagiarised worksheets and reading material, as are the folders and school bags of the students. These collections are of hopelessly low quality but the alternative for the students is worse: the “teachers” in question could not produce original material that is even remotely better. Although most of these students started off recognising it for what it is (theft), they gradually learnt from their excellent role models and will shamelessly copy all forms of literature without a second thought.

Flagrant Misattribution. “Experienced teachers” have moved on to the far bolder manoeuvre of outright stealing, a strategy as elegant as it is flawless: the author has been brushed aside, nobody can trace the stolen content back to its true origin, and once priority has been established, anyone else who uses the content will be accused of stealing it from the thief! Senior and “experienced” staff bully others into doing the bulk of the work, that the senior “experienced” staff then take the credit for.

Historical Revisionism. Perhaps we can trust NRPC Yearbooks... or can we? Perhaps someone made it all up, when they wrote about programmes that were run in 1993 and in 1995. Perhaps it is the later claims that are true, when others have come along and told us that they started these programmes in 2001. Yearbooks provide what we assume is a fairly reliable historical record of achievements, one which belies many of the claims made by more recent NRPC executive, science and mathematics staff. Indeed, current staff have avoided drawing attention to the fact that these archives may exist.

Dimness, Dullness, Density, Disadvantage and Developmental Delay. What makes teachers good at teaching gifted and talented, intellectually advanced, students? Unfortunately, there is essentially no crossover between the following three major groups of professionals:

- people who study gifted and talented education;
- people who teach gifted and talented students; and
- people who are actually good at teaching.

Most “G&T” research is performed by academics far out of touch with the reality of the classroom. People who actually teach gifted and talented students are not typically from selective schools, and their corresponding intellectual capability will be representative of the remaining population. Given half a chance, students could quickly and easily overtake their teachers, but usually do not —suggesting that we are not even giving them half a chance! The culture of limiting students is pervasive. Students are told to “not rock the boat” (and other autonomy-suppressing things) by their peers and their caregivers who are in cahoots with their teachers. These are teachers who feel threatened by the superior intellect of their students, and so intimidate the students to ensure persistent downward pressure on their rising ability. Good teachers in general are hard to find, but harder to find at schools like NRPC where seniority and “experience” hold more sway than competence and capability. Self-important teachers lay on their “experience” as an excuse to continue using archaic and ineffective methods like writing essays on the board and distributing plagiarised photocopied resources, instead of adapting to the different and changing needs of students.

Excuses, not Enrichment. Much of NRPC success in the 1990s can be explained in terms of selection bias and poaching, but the archives paint a much bigger picture.

The Age of Innovation. The 1990s was an era of educational innovation, when a truly dedicated team of teachers poured time and effort into the introduction and development of new enrichment programmes in science and mathematics. Although knowledge of this has faded quickly with time, the Yearbooks tell a story of how specific individual teachers, with the full support of their executive, started a range of innovative teaching activities. In subsequent years, innovation took a back seat, and Yearbook depictions reveal only “more of the same”

The Age of Complacency. By the early 2000s, innovation had given way to complacency: willingness to stick with a formula that had worked over the previous decade. Failure to keep up with changes in the world around them has left NRPC on the back foot. A self-congratulatory attitude began to permeate staff and students alike, undermining their will to improve. Other top schools try new teaching strategies and embrace new technologies while NRPC remains stuck in the 1990s, “experienced” teachers clinging tightly to their familiar, obsolete methods of instruction. Teachers in many other schools now engage with their students through the use of portable electronic communications devices, but NRPC staff see the use of electronic devices in the classroom as a threat.

The Age of Arrogance. The late 2000s saw development of what can be described only as conceit, marked by a belief that “because NRPC is the best, anything we do must therefore be the best way to do things”. Major changes in leadership at the school drove major changes in direction, and new executives were remarkably willing to take credit for the success of others, yet contributed little to such success themselves. “Experienced” teachers and students laughed off any suggestions that they could improve, and would dismiss, humiliate, and even intimidate others who made innovative proposals, occasionally poaching the ideas but usually simply ignoring them.

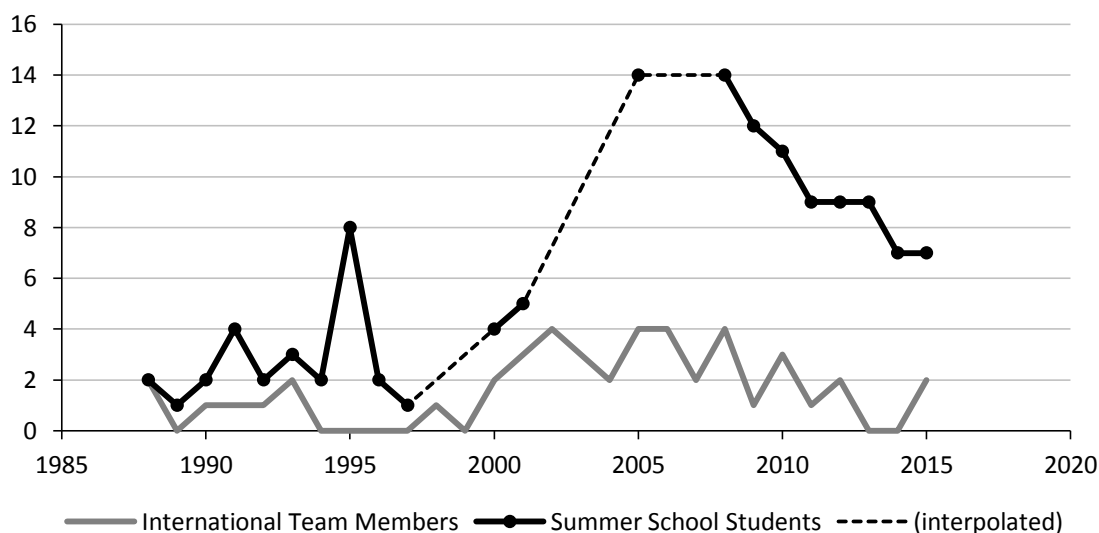
“Experience”, not Excellence. What happened to the innovative enrichment culture that once made the school great? They had become so comfortable in their domination of the HSC, under its low ceiling, that they blinded themselves to visions of

anything further. In spite of their protests that they were not merely an ATAR factory, when they realised that they had nothing else to show, that is exactly what they retreated to. Repetition is not experience, and in fact has the opposite effect to experience: repetition generates a narrow field of view while experience tends to produce a much wider perspective. “Experienced” teachers, when they encounter something new, say “We have never ever seen anything like this!” and dismiss it out of hand. Consider the absurdity of teachers at a school like NRPC complaining about having “never seen anything like this before”. Should intelligent students be able to handle questions that they have not seen before, or should they only deal with those that were recalled from HSC past papers or syllabus examples? Teachers at the school who routinely reject ideas because they have “never seen anything like this before” directly reduce the educational opportunities of the students.

Performance. We use Australian Science Olympiad training school and team representation as data for our analysis. Specifically, we consider:

- (1) how many of the approximately 60 students who qualify for summer training each year are NRPC students, and
- (2) how many of the 13 students who represent Australia in the International Science Olympiads each year are NRPC students.

The 2016 results were unavailable, but will most likely represent side effects from FAST and then the infiltration of the school by ANSWER agents in 2015.



Interpretation. Our interpretation will be biased to favour the aims of ANSWER: to ensure that gifted and talented high school students receive the best education possible. If the data point to good and bad teaching, we will identify where the data are pointing.

The Distant Past: up to 1991. Little is known about NRPC teaching practices prior to 1992. Data from this period are of passing interest only.

The Age of Innovation: 1992 to 2001. This period coincides with the commencement of several fresh staff. “Coincidence” is perhaps too dismissive a term, as that many of them worked to improve the teaching of science and mathematics at this school. Initial gains in mathematics were not matched by performance in science. There were

claims of limited resourcing, until the late 1990s saw renewed vigour in implementing enrichment programmes. The effects of these courses was seen by 2000 and 2001.

The Age of Complacency: 2002 to 2008. The initiators of the “Chain of Success” graduated, leaving teaching in the hands of a new generation of their trainees. The internal NRPC Olympiad Training Programme burgeoned to engage close to 200 students each year. Conversion rates fell sharply, but international representation remained stable. It is probable that the effect of training was merely to increase medium-level student performance. Nevertheless, these data show that with the right educational opportunities, the intelligent students at schools like NRPC can do very well indeed. Accusations and real reports of throttling emerged later during the Age of Arrogance, but NRPC performance was ready to plummet of its own accord, with no need for any help from throttling effects at all.

The Age of Arrogance: 2009 to 2016. Developments in science and mathematics perhaps eclipsed success in other areas, and may well have incited some dissatisfaction among other staff. Over the earlier Age of Complacency, almost one quarter of the summer training schools students were from NRPC. Inevitably the staff driving the earlier successes retired, and starting with a precipitous decline from 2008, training school participation dropped a full 50%. Team representation correspondingly fell from 4 students in 2008 to 0 students in 2013, ending the 13-year Chain of Success that had defined NRPC science in the 2000s. Everyone at NRPC simply pretended that the current numbers were the big news, and quietly hid the longitudinal statistics. What could possibly explain this downward trend?

- (1) Olympiad teaching exceeded the ability of staff teachers to regulate.
- (2) A “Chain of Failure” was established.
- (3) NRPC suffered an increasingly exclusive focus on HSC results.

Regulatory Failure. At its peak, Olympiad preparatory training in time alone amounted to one third of a full-time high school teaching load. The estimated rate of preparatory training is 13.5 times faster than standard high school, implying that peak Olympiad preparatory training required the equivalent of up to 4.5 full-time teachers. It is predominantly students who conduct the actual tutorials. The printed materials they used were of very limited value. Classroom practice was difficult to monitor, but there appeared to be little guidance or supervision of teaching. None of the current NRPC science teachers was ever an Olympiad team member, or even an Olympiad summer school trainee. It is very difficult to properly monitor, supervise, regulate or guide the conduct of a tutorial, if the person charged with doing so is unable to understand the content. This directly disadvantages the best science students in the country who attend this school, and prevents other leading science students from providing the best teaching to pass on what knowledge they do have.

The Chain of Failure. With inadequate supervision, student instructors propagated the same mistakes that they were shown how to make. Many Olympiad Summer School students who failed to make the international team, became student instructors and taught younger grades of NRPC students what was needed to attend the Olympiad Summer School and fail to make the international team. Carelessness led to the development of deep-seated

misunderstandings and familiarity with getting things wrong. Factual inaccuracies arose often, backed up by arguments that it is unfair to consider incorrect answers incorrect, if teachers taught students the wrong thing. Strategic errors led student instructors to prioritise overstudying for the HSC over Olympiad preparatory training, modelling for their own students a pattern of HSC obsession. Staff and student instructors alike failed to impress on new students the required work ethic to do well in more difficult endeavours like the Science Olympiads.

Narrow-Minded Failure. NRPC students were once seen as incredibly intelligent, often simply happening to do well in the HSC as a result of this intelligence. NRPC students are increasingly seen as entirely focused on doing well in the HSC, and only occasionally happening to be incredibly intelligent despite this. In the past, HSC results were merely one part of a broader picture of success. NRPC now defines itself as a school that focuses entirely on its top HSC results, to the exclusion of everything else. Ironically, the school achieves poorer results than in the past, despite the focus being ever more on how well the school is doing in the HSC.

The Future: 2017 and beyond. (Data for 2016 most likely represent side effects from FAST and then the infiltration of the school by ANSWER agents in 2015.) With its extracurricular academic performance at the lowest point in 20 years, what is next for NRPC? The Olympiad preparatory training programmes have continued, but the school executive continue to systematically implement strategies to weaken the intellectual capabilities of science teachers and students. Other procedures they have happily taken on to try to make themselves and the school look better include:

- heavily censoring student publications to retain only favourable articles;
- demanding that prefects not write and perform the customary annual satirical song, requiring them to avoid mentioning marks and rankings;
- taking a prominent cameo role in the school musical;
- redirecting resources from theatrical properties, to fund more HSC study and accelerated building of a school gym (which could then bear the name of one of the executives);
- alienating previous students of earlier ages in an effort to silence their insistent reporting of a far better learning environment in the past;
- blanket-banning personalisation of school jersey tags as an easy alternative to vetting individual submissions, with the added benefit of conformity;
- staging an evaluation of a major department at the school, enabling the reorganisation and manipulation of political supports.

Reanalysis of Internal Evaluation Findings.

Background. During Term 1 2016, an evaluation of the Science Department was staged at NRPC, creating the impression of commitment to continuous school improvement. Staff were advised that the evaluation recommendations would not be forced upon the department, and subsequently, were taken to task over exactly that. The evaluation team included executive staff from this and other schools, but no representation of key stakeholders such as students or their caregivers. They presented their findings as assorted points jumbled under different headings without a clear logical progression. In all, the

appearances were unprofessional and nobody with a selective school level of intellect was able to take the review seriously.

Actual Findings (Reanalysis). For claimed findings, please see the original review document. This section is satire, and is best read unsummarised.

6. Review :: Mathematics

ANSWER has a stronger focus on science. The Mathematics Department seemed astoundingly hostile. The placement of mathematics on the walls was considered vandalism.

Classroom Teaching. Little is known about classroom teaching in mathematics at NRPC. Teachers seem to struggle when the conversation moves from simple demographic information about who is teaching whom, to matters of actual content and delivery.

Context. The Ages of Innovation, of Complacency and of Arrogance apply equally to mathematics as they do to science. A Mathematics Enrichment programme commenced in 1993, initially targeted at Years 7 and 8. It did not take long for the school to reach the peak of its mathematical performance. Staff at NRPC recognised the significance of these results, and wrote the best parts of Mathematics Enrichment into the conventional mathematics syllabus. In 1998 Informatics Enrichment commenced, and to date Informatics has been one of the few areas in which NRPC has retained its dominance. The Informatics Enrichment programme is now conducted essentially without staff supervision.

Progress. What effect has the passage of time had on the Mathematics Department, and what does it mean for the future?

Inappropriate Pessimism. NRPC is a selective school that receives the most academically gifted students right from the start. When staff are pessimistic about the abilities of their students, that pessimism is almost certainly misplaced. It is very confronting for teachers to be responsible for the education of students who are probably more intelligent, and likely more knowledgeable, than those teachers are. This should inspire teachers to rise to the challenge, but instead at NRPC they have decided to restrict what and how their students can learn. We do not accelerate our students, because we are too inept to provide the teaching they need to do well. Although an excellent syllabus was developed in the 1990s, the best parts of it have already been removed, a change most likely founded on an insulting assumption that students are stupid and incapable.

Lower Expectations, Lower Results. As expectations fall, so does performance. Confined to a syllabus of garbage, all that the students bother to learn these days is trash. Gifted students need extension work or they will tend to underachieve. Unfortunately, mathematics teachers at NRPC can no longer teach even at the “normal” level.

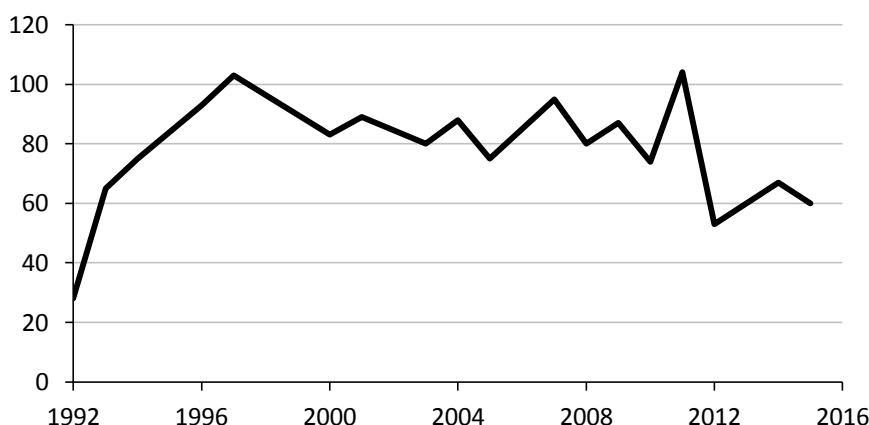
Inappropriate Optimism. Staff at NRPC seem to be full of confidence in their own ability. They may not be good at teaching in their nominal area of expertise, but they are good at hiding this failing. From a time when NRPC fielded 3 Mathematics 4 Unit

classes with more than 3 capable mathematics teachers, there are now 5 such classes — and 0 such teachers teaching them!

Defensiveness and Hostility. Teachers tend to become very defensive and hostile, when doubt is cast on their ability to teach. This is entirely consistent with the current Age of Arrogance, and the overconfidence that most of the mathematics teachers have. Early in 2016, the “Hall of FLAME” project replaced ageing posters from the Age of Innovation with new mathematical content. The process had been underway for months before even a single staff member realised that any change had occurred. Senior staff members reacted with threats and accusations, contrasted with their joyful pride at ruining a previously well-posed mathematics syllabus.

Performance. Here, we see the consequences of the transition from innovation to arrogance.

Chart: NRPC AMC prizes.



Interpretation. We draw the attention of the readers to the following key features.

- Overall gradual decline in the number of all higher awards, most consistently seen in the prize count.
- Marked increase in prize count over the first 4 years of the Age of Innovation.
- Marked drop in performance in 2012, with lower prize counts than in the first year of the Mathematics Enrichment programme.

7. Closing Remarks

A Comment on Bias. Data collection involved direct observation of teaching practices, engagement in staffroom conversation, and casual discussion with selected students. We side with the students on this one: it is their education at stake.

Value Received and Value Addition (“from Knowing to Nothing”). NRPC takes the best students in Year 7 (and continues to poach students from other schools). Over the next 6 years they suffer a sustained assault on their intelligence, leaching value from the students and turning leaders into slaves. Students are intensely vocal about perceived social issues that are highly visible, but find it far too difficult to look at themselves to recognise the failure of their own education.

Conclusion. NRPC has been a victim of its own success. As a school where students routinely outperform the rest of the state in the HSC, it has increasingly attracted students and caregivers whose sole concern has been exactly that. It was once a school that brought the best teachers and students together, enabling them to work together to achieve the highest academic results. Now it brings stressed, ATAR-obsessed students and pathetic, cowardly teachers together, to wreck the education of a whole generation of academically gifted students by screwing up their school. Teachers could not carry out this disastrous campaign without the support of students and caregivers, even if that support is not through action, but inaction. Very few of our readers will want to do anything about this. Their own individual high ATAR is far more important.

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1 Introduction

North Rocks Poaching College is a school in north-western Sydney, but south east of North Rocks proper. With a farm and an electrical substation attached to it, observers could be forgiven for assuming that the school (like the rest of Australia) is best known for its strong focus on primary and secondary industries.

These observers are gravely mistaken, because the school in fact boasts an impressive academic track record, with leading NSW HSC results for the past 20 consecutive years (some less-modest authors estimate this as 25 years). There is strong competition among selective schools applicants to secure a place at this prestigious institution which virtually guarantees its students an ATAR of 90 or above, and observers “in the know” believe that NRPC provides the greatest added value to top students in Sydney.

They too would be mistaken, because the school already receives the leading students to begin with, and merely acts as a concentrator for high-achieving students who would do well no matter which school they went to. Aggregating them at a single school simply ensures that when the final HSC marks are moderated, there will be fewer students “dragging down” the results of others.

To guarantee that the minimum amount of “dragging down” occurs, NRPC takes achievement aggregation one step further: as the second half of its name suggests, through the use of a special technique known as “poaching”. There is nothing innovative in this technique, it refers simply to the acquisition of leading students from other schools, conferring a two-fold benefit to NRPC: it directly reduces the performance of competing schools, while providing a corresponding boost to NRPC performance.

2 Context of this Review

NRPC has come a long way in the past 25 years, more so in the first half of that era than subsequently, but nevertheless a successful quarter-century that any principal would speak pridefully of, whether they were involved in building that success or not. The focus of this review will be on progress in science and mathematics, although readers should note that the success of the school extended to all areas of academic endeavour.

In recent years, careful observers will have witnessed a reversal of many of the trends underlying that success. This is not immediately apparent from HSC merit lists, for a variety of reasons which we will explore later. However, we have discovered several concerning developments and indicators that point to a decline in standards and expectations at the school, with grave implications for students. Large organisations inevitably undergo changes in direction with staff turnover, and unfortunately for the students, this sometimes includes major steps backwards. Efforts to arrest this degradation of teaching and learning at the school have encountered stubborn resistance, and only revealed the pervasiveness of the problem.

So, here we are: the ANSWER.

3 HSC Results

NRPC performance in the NSW HSC climbed steadily in the 1990s, reaching an apogee in the 2000s with (internally) reported median UAI / ATAR values up to 99.55. The maximum UAI was 100, while the maximum ATAR is 99.95. Levelling out of HSC performance likely represented a variety of ceiling and aliasing effects, including most of the variation being due to noise as assessment grades have been saturated, and underachievement of advanced students whose responses have surpassed the scope of the test or the markers.

Into the 2010s, HSC performance has remained virtually unchanged. Median ATAR values are no longer publicly reported, for unspecified reasons. However, the number of citations on HSC merit lists, and the corresponding proportion of subjects assessed, have been relatively stable for the past 20 years.

Proportion of HSC Examinations yielding “Distinguished Achiever” award from NRPC (shaded), and from the next highest school each year for comparison.

Year	Proportion	Examinations	Awards	Proportion	Examinations	Awards
2015	0.741	1047	776	0.638	973	621
2014	0.691			0.585		
2013	0.716	1154	826	0.576	1248	719
2012	0.693	1137	788	0.615	932	573
2011	0.688	1142	786	0.624	963	601
2010	0.757	1116	845	0.569	1057	601
2009	0.720	1113	801	0.629	1188	747
2008	0.751	1110	834	0.534	1220	651
2007	0.736	1093	804	0.593	1054	625

{→ “<http://bettereducation.com.au/Results/Hsc.aspx>”, retrieved 2016-05-26}
 {“<http://www.goodschools.com.au/news/top-schools-in-new-south-wales-revealed>”, retrieved 2016-05-26}
 {“<http://www.goodschools.com.au/news/top-new-south-wales-schools-in-2014>”, retrieved 2016-05-26}
 {“<http://www.goodschools.com.au/news/your-states-top-schools-for-2015>”, retrieved 2016-05-26}

Despite the lack of an obvious significant trend, if we look carefully, we might notice that the NRPC numbers do seem to have decreased over the years. At the same time, the comparison numbers seem to be increasing correspondingly. The gradients are so slight that we shall simply assume a lack of significance at this stage. However, as we continue the analysis, we will find that this pattern shows up again and again, even when the decline in each individual measure is so subtle in this regard!

Chart: proportion of HSC Examinations yielding “Distinguished Achiever” award from NRPC, and from the next highest school each year for comparison.

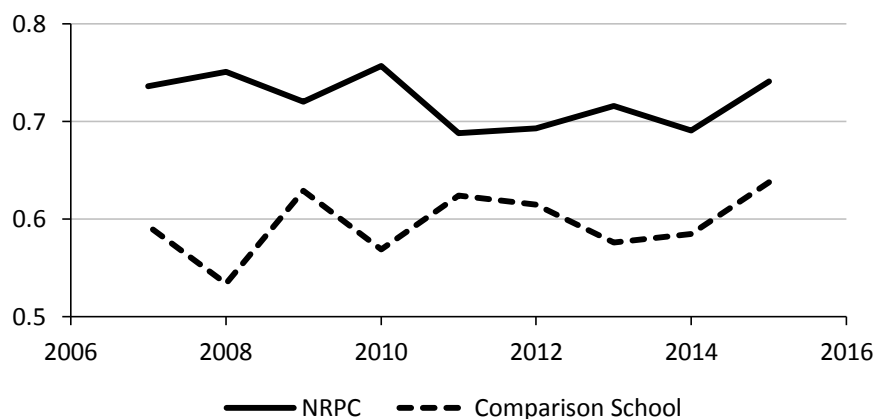
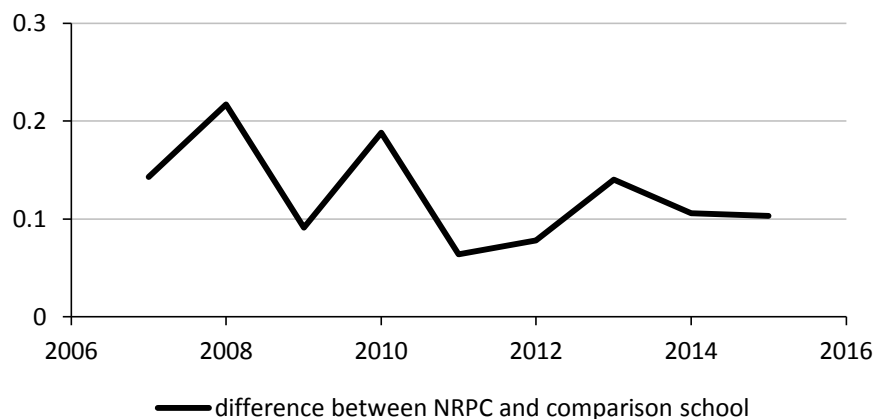


Chart: difference between “Distinguished Achiever” proportions, for NRPC and for comparison school.



This persistent dominance in the HSC has led to the school gaining a reputation as an “ATAR factory”, generating university admissions to the most highly-sought university degrees but devoid of any other purpose. Despite the protestations of past students, it remains true that the majority of graduates from NRPC will apply to study medicine at university, and close to half of them will in fact become medical practitioners. Most of the remainder will study and later practice law. Although they brought with them the highest intellectual potential on admission to the school, few NRPC graduates will make the best use of that potential in their later lives, choosing instead to squander it on routine service provision rather than genuine innovation and leadership. So much for “value-adding”....

We now take a look at just how NRPC stays far ahead of the pack (at least in the HSC).

3.1 Selection Bias

Correlating with its outstanding HSC performance, and largely caused by it, NRPC receives the most and the strongest selective schools applicants each year — or at least it did, until 2015. Key discoveries of this review aside, it should surprise few readers that any school which receives the students who are already leading their cohort, would go on to produce students who are leading their cohort. It is said that good students will do well no matter what, and this is probably true. Whether the school is generating value for its students or not, the fact is that NRPC students are likely to find a way to learn what little they need for the HSC either way.

Minimum entry scores for NRPC, and
next highest school for comparison.

Year	NRPC Minimum Entry Score	NRPC Entry Rank	Comparison Score
2015	230	2	235
2014	235	1	219
2013	245	1	231
2012	245	1	231
2011	238	1	229
2010	237	1	230
2009	241	1	223
2008	240	1	226
2007	241	1	227
2006	247	1	unknown

{→ "<http://bettereducation.com.au/Resources/NSWSelectHSEntryScores.aspx>",
retrieved 2016-05-16}

{→ "<http://empowerededucation.com.au/wp-content/uploads/2013/06/Minimum-entry-scores-for-selective-high-schools-placement.pdf>",
retrieved 2016-05-16}

{→ "<http://www.smh.com.au/news/national/big-gap-in-selective-school-entry-marks/2005/11/27/1133026350278.html>", retrieved 2016-05-16}

Chart: minimum entry scores for NRPC, and next highest school for comparison.

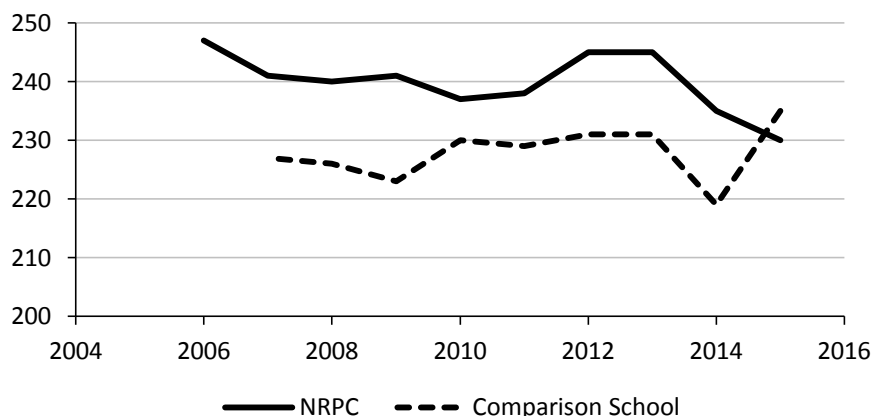
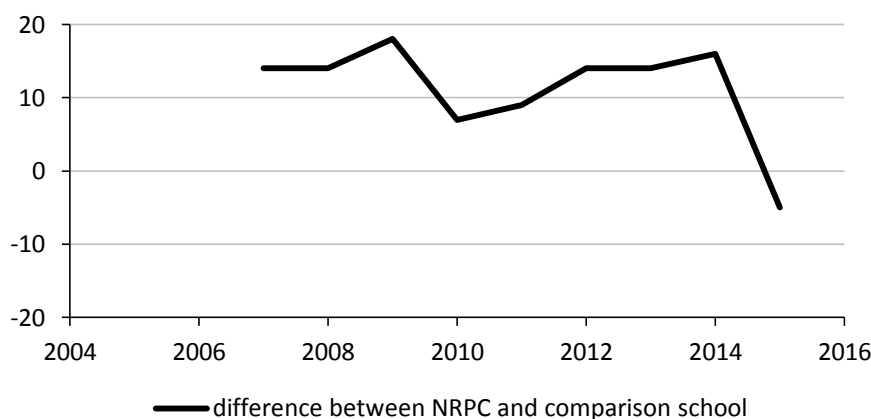


Chart: difference between minimum entry scores for NRPC, and for comparison school.



To make more valid comparisons between different schools, investigators would have to create a reliable measure of “value added” by a school. Such a measure remains elusive, partially because of limitations in the available assessment frameworks (see “Ceiling Effects” and “Aliasing” below), partially because of the absence of appropriately skilled educational researchers, and partially because of a lack of cooperation that is forthcoming from the government {→} and its schools. There are no good data on this, and readers who are interested in exploring this area are invited to forward any considered proposals to us.

{→ “<http://www.smh.com.au/national/education/top-teacher-results-stay-a-state-secret-20100716-10e6q.html>”; retrieved 2016-07-12}

3.2 Poaching

This is the practice from which the school derives its name. Poaching refers to the acquisition of leading students from other high schools, and benefits NRPC in two ways: it directly reduces the performance of competing schools, and correspondingly boosts NRPC performance. This transfer

occurs for students entering Year 8 to Year 11, and over that interval boosts the number of students for each cohort by approximately 30.

In this review document, we will refer to those NRPC students who enrolled via the Year 7 intake as “native” NRPC students, and to those enrolled via Year 8 to 11 intakes as “poached” NRPC students. This description is apt, as any more-delicate students who are accustomed to floating at the top of their classes in their original school, often find themselves thrown into hot water when they arrive at NRPC where competition is rife.

Readers are encouraged to simmer over this idea for a while, because the next one can be quite inflammatory, and may even bring some observers to the boil.

3.3 Coaching

Old habits die hard, especially the bad ones. After wasting their primary school life at coaching for selective school entry, flocks of NRPC students will continue to attend the same or a similar provider of substitutes for good education. Like NRPC, the best-performing coaching and tutoring establishments utilise selection bias to manufacture their outstanding results: they apply entrance examinations so that they may appear exclusive and obtain students who are already doing well; they demand exorbitant prices to appear valuable; and they receive the credit for the outcome when leading students end up in the lead.

In fact, 125% of native NRPC students attend private tutoring or coaching — starting with essentially all of the 120 Year 7 students in each cohort, and reaching a total of 150 (native and poached) students by Year 11 and 12. Perhaps these students and their caregivers do not realise that there are teachers at school who are paid a salary to do a job called “teaching”, with responsibilities that include educating the students. That said, just because someone is paid to do something, does not necessarily mean that that person can perform their duties competently.

We suspect that the coaching epidemic is both caused by and the cause of the faltering ability of teachers at schools like NRPC to actually teach their nominated subject. It makes obvious sense to anyone who is a caregiver of a leading selective school student, that when teachers are failing to teach their subject, then the student needs an alternative source of success, like a private tutor. Nothing is more reassuring to people who are responsible for the welfare of others, than pouring funds into confident purveyors of confidence.

What is not so obvious is that because some (perhaps even several) of these private tutors actually do help their students perform better, it allows schools and teachers to get away with providing substandard education. A student who is taught well already is unlikely to benefit from a tutor providing the same service, but if the student is learning poorly from a teacher who is failing to teach, then a good tutor will likely be able to make up the difference. Students continue to achieve good results, and as an unfortunate consequence, they are now covering up the incompetence of the school teacher. The correct solution would be to address the problem of staff incompetence with the employer of the staff, but no intelligent leading self-respecting selective school student would use so straightforward a strategy to solve this sad state of affairs.

Just for the record, a recent review of schooling, coaching and tutoring costs performed by as part of the “Hall of FLAME” project found that the relative costs of private tuition or group coaching are

a whole different order of magnitude to the cost of public education. Even with fairly conservative estimates, private tuition incurs costs greater than 30 times that of attending government school, while coaching is at least 20 times as expensive as school (which is estimated to be the equivalent of \$2 per hour). Now caregivers can pay \$60 or more per hour to feel over 30 times more assured that their expenditure is giving their child the best chance to succeed.

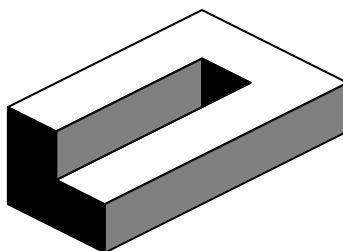
3.4 Ceiling Effects

Ceiling effects in educational assessment relate to the limitations of tests in measuring performance above (beyond) the level at which those tests are targeted. At an individual level, educational and cognitive psychology commentators often assume that each test subject performs perfectly. The reported consequences of using low-performance tests to assess high-performing students therefore include underestimation of true ability (which exceeds the scope of the test, a phenomenon we shall call “clipping”), and a consequent failure to distinguish top achievers (who all achieve the highest score, a phenomenon we shall call “saturation”).

More complex ceiling effects come into play at a population level once saturation is achieved, but they are less commonly reported (probably because educational and cognitive psychology is, ironically, behind its game in dealing with students who are ahead of theirs). Even the best students are not perfect, and like anyone else they occasionally slip up, or have bad days from time to time. When high-end test results are saturated, most of the variation between students is due to noise: occasional lapses into carelessness, or incidental effects like illness or personal crisis. While the use of random processes to determine student destiny is in some sense “fair”, the fact that there is such an item like the Selective High School Placement Test, would suggest that students and caregivers feel otherwise.

Educational staff may even amplify this spurious variation, when they discover that they are unable to rank students properly because of saturation, and look for anything that may help them to distinguish these students. The sad outcome is that “anything” turns out to be arbitrary features that have zero value outside the test, such as whether a student has applied an unreasonable level of detail that was previously uncalled for, or how exactly the student has reproduced a phrase or image (unless the test is about copying, which is a rather low-level task).

Example task. Copy the diagram below. This kind of task is often used in tests for cognitive impairment. Note that such tasks are rarely used at the high school level in tests of cognitive ability, though perhaps they could be.



All of this of course generates a focus on perfection and exact memorisation, lowering the level of cognitive function demanded of students (another form of aliasing; see 3.5 below). Rather than encouraging students to progress further in their intellectual development, instead we force them to rehearse, recite, and revise within the confines of a low-level syllabus. Our students become world-leading experts at crawling, so why should we encourage them to stand up and walk, or perhaps run? The decline is compounded by idiot teachers (also a later topic, 5.1.4) who, unable to address the high-level needs of the students, assess the students on their goodness of fit to what the teacher is able to do: which is ultimately to destroy the education of these students. Students learn from teachers, and so eventually they will be able to destroy their own education without outside help.

“Lol try telling the rocks maths teachers that. They are unbelievably pedantic about certain details. They've become even stricter this year since rocks got no state ranks in 3U last year despite having a lot of people on 100 rip” — student.

{→ <http://community.boredofstudies.org/14/mathematics-extension-2/339956/north-rocks-trials.html#post6999682>”; retrieved 2016-07-04}

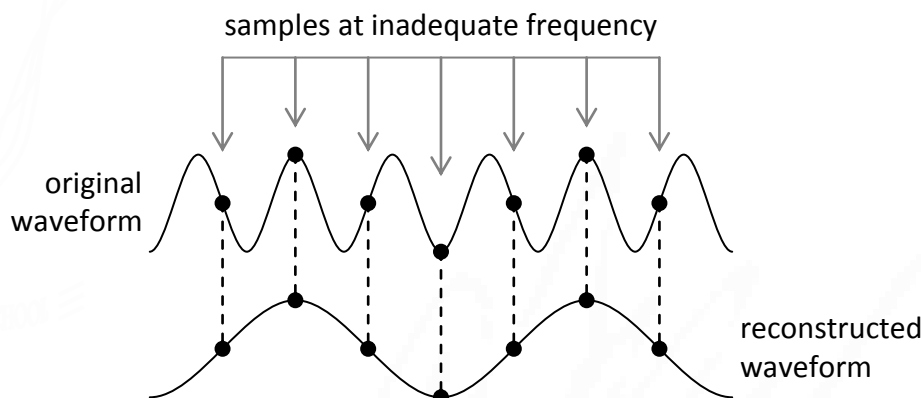
This obsession with getting answers exactly right, the way that some arbitrary assessor wants them, generates significant anxiety. Informal reports already suggest that the prevalence of mental health problems, predominantly anxiety-related, has risen to unprecedented levels at NRPC. As teachers and caregivers continue to insist on flawless adherence to the requirements of a narrow scope of education, anxiety disorders inevitably erupt. The school then dismisses these as “wellbeing issues”, allowing them to conveniently ignore and avoid addressing the real problem, which is substandard teaching and testing.

Back to the implications for the HSC performance of NRPC, in short: because the students at the school are still relatively high achievers despite these erosive factors, performance in the HSC remains saturated and hence will not appear to drop until much, much later.

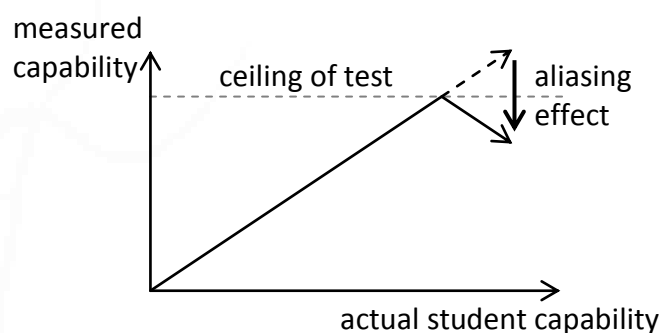
3.5 Aliasing

This is our term for the paradoxical effect whereby measured performance drops, as actual ability climbs past the upper bound of the assessment. “Gifted underachievement” happens through a variety of causes, but what we deal with here is an apparent (spurious) underachievement, which unfortunately has real consequences. We are talking about what happens to the results of advanced students whose responses have surpassed the scope of the test or the people marking that test.

The aliasing principle is very simple, and parallels the use of the term in signal processing (from where it was borrowed, of course). When the frequency of a waveform increases past the sampling frequency (more specifically, half of it), the waves start to “wrap around” again, and the resultant wave seems to reach a maximum frequency, which then decreases (symmetrically, in fact). A commonly cited and familiar example of this occurs when spinning objects are filmed with low frame rates (below the flicker-fusion rate of the eye), and appear to alternate between spinning forwards and backwards as the rate of spin increases.



Similarly, as students grow past the limitations of a test, we can expect that more and more of their answers will be too complex, too elegant, too current, too innovative, or even too subtle for dim and inflexible assessors to handle. For these assessors, if an answer does not conform to the expected patterns, or if an answer does not seem to be within the conceivable scope of the test, then it is wrong. No attempt to try to understand; no effort to support gifted and talented students in what they are capable of; just error. We have not seen everything yet, but we have seen students marked incorrect for citing “glomerulus” as the biological equivalent of “filter” along the urinary tract, with the expected answer being “kidney”. Apparently it is also wrong to find the area of a triangle by subtracting right triangles from its bounding rectangle, because the only correct method is to find the length and equation of its base, and then multiply by the distance from the remaining point to its base, and divide by 2.



We believe that this principle is particularly relevant in science, where preceding ideas (hypotheses, theories and laws) are so often overturned by subsequent discoveries, and the learning of oversimplified representations needs to be painfully corrected by later instructors. Unintelligent and recalcitrant teachers, stuck in their simplistic and perhaps naïve little worlds, are not helping when they insist on memorisation and championing of the crude models and ideas that they advocate. Their apathy is clearly an excellent example for our best students to follow, and stands them in good stead as the very kinds of role models we need at NRPC.

As previously described, a similar but converse phenomenon also occurs, where the actual ability of students drops as they seek to optimise their performance in a low-level assessment. Students who have previously progressed past the rote-learning and recital stages, now must relinquish their newly-found analytical and abstraction skills to focus on the important parts of their tests:

excessive detail and exact memorisation. So the story goes, that a Great Educator once said that “if you want to be replaced by one of these (pointing to textbook), then keep memorising things word for word” — but then quit her (or was it his?) job in disgust because all of the students recited exactly that line as it was said, in their answers to a question in their educational psychology test at the end of the term.

The real consequences of this kind of educational approach are devastating. Together with ceiling effects, we can now achieve a schooling system that favours rote learning and memorisation over extension and advancement. Students who aim for perfect recall and excessive detail will do well; students who seek to learn more and expand their understanding are instead driven down the ranks to despair. What better way to disillusion our best students, and deter them from didactic pursuits? No sensible observer could deny that it is a dreadful situation we have set up here.

However, aliasing is good news for performance of NRPC in the HSC. As the intelligence and actual capability of NRPC students drops, fewer of the students will so significantly exceed the limits of the assessment tasks, and thus we might even expect HSC performance to climb! Who needs students who can go beyond, when we can hold them back to make ourselves look better?

4 Alternative (Better) Measures of Performance

Given that HSC results are not a sensitive measure of high-level academic performance, what are the alternatives? We require measures which are not subject to saturation (ceiling or floor) and aliasing at this level of performance. Consistency and reliability would be an added bonus, though difficult to ensure because so few tests have been run at this level on this population that the available data are insufficient for validation. Instead, we shall settle for independently-posed competitions that are cast to a wide audience, in particular: the ASOE, and the AMC.

The bases on which the ASOE and AMC have been selected for our purposes are as follows.

- (1) They are prominently mentioned in NRPC Yearbooks.
- (2) Long-term historical data are available, because of (1).
- (3) They attract participation from across NSW and Australia, such that they provide valid comparative information.
- (4) Many observers will be familiar with them, because of (1) and (3).
- (5) They are specifically designed to have a high ceiling for achievement, which is exactly what we need, in contrast to the limitations of the HSC.

4.1 Australian Science Olympiad Examination[s] (ASOE)

According to the relevant ASI page {→}, “The Australian Science Olympiad Competition is a national extension program for top performing secondary science students which culminate in the International Science Olympiads – the Olympic Games for science students.” Notwithstanding the grammatical inconsistencies of subject-verb count mismatch and relative pronoun inconsistency, the presumed meaning seems to be true. Of course, we should probably also hyphenate “top performing” but it is also fair to suggest that the binding was indeed intended to be “performing secondary science students”.

{→ “<https://www.asi.edu.au/programs/australian-science-olympiads/>”; retrieved 2016-05-21}

4.1.1 History

The ASOEs are currently administered by the “Australian Science Innovations” (ASI) as part of their Australian Science Olympiad program. Until 2005, the organisation was purely a body known as the “Australian Science Olympiads”, thought to have branched out from the Australian Mathematics Trust (AMT). It appears that the AMT administered the Australian Science Olympiads at least until they were rebranded the “[Random Title] Australian Science Olympiads” due to major sponsorship between 1997 and 2004 (note that the ASI at present have suppressed the actual designation used in that period).

Historically, students would compete in the “National Qualifying Examination” (NQE; now ASOE) for each Olympiad (Physics, Chemistry or Biology), for a place at each corresponding “Summer Training School” (now “Australian Science Olympiad Summer School”). These summer training schools were usually in the school holidays and would run for approximately 2 weeks.

Following the training school, 4 or 5 international team members for each of these sciences would be selected, to represent Australia in the International Science Olympiads. Selection would be based on an internal assessment schedule, which has varied somewhat between subjects and also from year to year. Typically, additional training would be provided to the international team members, in the form of another training school in the autumn school holiday.

For unknown reasons, very little documented history of the Australian Science Olympiads exists online. It was only in 1994 that ASO coverage extended to all 3 major sciences (physics, chemistry, biology), but they have been maintained ever since, and thus these are the ones we use data for. In 2015 the fourth subject, earth (“and environmental”) science, was added. However, without reliable longitudinal data on this we exclude it for the purposes of our analysis. We also note the marketing-promoting tendency to add verbosity only to detriment, as environmental science is in fact usually considered part of “earth science”, which is what most other people would call it. In the other hand, I am holding a variety of cutlery and knives, with which I shall eat my vegetables and broccoli.

Although the criteria for various awards have changed over time, training and team numbers have remained mostly stable and hence it is these that we will use as data for our analysis. Back in the days before the ASI restyling, plaques were awarded to the top 3 students in each state or territory. These were designated (predictably) “Gold Award”, “Silver Award” and “Bronze Award”. Since then, another public relations exercise has seen these metals associated with a proliferation of “medals”, awarded for successive thirds of a “High Distinction” award category.

Schedule of Awards for ASOE Ranks (latest known)	
High Distinction, Gold	top 3.33...%
High Distinction, Silver	next 3.33...%
High Distinction, Bronze	next 3.33...%
Distinction	next 20%
Credit	next 30%
Participation	remainder (40%)
{→ “2015 Australian Science Olympiad Exams; Breakdown of awards”; as distributed to schools}	

Data from 1996 suggest that students were tougher back then, and (apart from in biology) needed to work far harder to obtain the same recognition. Physics and chemistry seem to have integrated actual performance into the criteria (such that awards were at least in part determined by the absolute ability of students to complete the required tasks), whereas biology seem to always have adhered to the use of relative ranks only (as per the Schedule of Awards above). Hence in physics and chemistry in 1996, high distinctions were awarded to the top 2.5% of students, distinctions were awarded to the next 4% of students, credits were awarded to the next 15.5% of students, and the vast 78% of students were like nitrogen in the air and simply sat around mostly inert. Curiously, the number of students who registered for physics and chemistry examinations almost

tripled over the next 19 years, but nearly quintupled biology (although the end result has been that the subscription for each of these is now similar, at approximately 1325).

Another little-known piece of history is that prior to 2001, the summer training schools for each science were held separately, but beginning in 2002, they were conglomerated for the nominal purpose of “encouraging social interaction”. Reports from former Olympiad students (of this more recent era) carry hints of naivety, but often indicate that students at these schools tend to remain segregated by subject. It seems that these students form such cliques naturally, but there is a suggestion that the practice is in fact encouraged by their supervisors (perhaps naturally also, as such “top performers” are frequently very competitive). So much for that explanation.

If this “encouraging social interaction” is not the true reason for melding the training schools, what then? Rumour has it that in the year 2001, an unexpectedly large number of students qualified for dual training, and despite correspondingly boosting their reserve list “just in case”, the physicists barely managed to fill out their international team (with a margin of zero). The rumour does not end there, either: it is said that one of the students of this amazing cohort in fact qualified for quadruple training (sadly, to the exclusion of mathematics), and in frustration, the organisers vowed “never again”. Students are now forced to choose in advance which single science they will focus on. The ANSWER does not necessarily agree with this approach, but it is not up to us.

4.1.2 Selection of Data

As mentioned above, we will use training school qualifications and team representation as data for our analysis, because total numbers for these have remained mostly stable over time. Each year, approximately 20 students qualify for the summer training school for each science. Of these, 5 international team members are selected from the physics training school, and 4 team members are selected from each of the chemistry and biology training schools.

NRPC archives and internal science department documents contain data along both of these streams (qualifying Science Olympiad summer school students and international Science Olympiad team members), enabling us to piece together a striking picture of science over the years at NRPC.

Team membership data were cross-checked with the ASI Hono[u]r Roll {→} to ensure integrity of the analysis; fortunately it was found that the NRPC reports were factually sound. Only occasional training school qualifying data were available from more than one source for confirmation.

{→ “<https://www.asi.edu.au/alumni/honor-roll/>”; retrieved 2016-05-21}

4.2 Australian Mathematics Competition (AMC)

The AMC is a very popular annual competition run by the Australian Mathematics Trust. For the past 2 decades, it has boasted a participation of approximately 500 000 students each year. Monetary prizes are awarded to the top approximately 0.3% of students in each region at each year level.

4.2.1 History

For 24 years beginning in 1978, the AMC maintained a stable and elegant scoring system. Of the 30 multiple choice questions, the first 10 would be worth 3 marks each, the next 10 would be worth 4 marks each, and the last 10 would be worth 5 marks each. Each student would start with 30 marks, earn the allocated number of marks for a correct answer, obtain nothing for not attempting a question, and lose one quarter of the allocated number of marks for an incorrect answer. The final result would be a score between 0 and 150 marks. (We contend that the only simplification that might improve this, would be to simply start at 0 and accept final results that are scores between –30 and 120.)

Careful observers speculated that changes in 2002 were implemented to pander to “politically correct” leanings in the wider audience, such that there were no penalties for incorrect answers. The first 10 questions would be worth 3 marks each; the next 10 questions would be worth 4 marks each; and the last 10 questions would yield 0 for an incorrect answer, 3 marks for no answer, and 8 marks for a correct answer. Free marks! That should encourage the best students. Under this scheme, students could achieve a mark between 0 and 150.

Perhaps there was enough uproar over this, to inspire continued changes over the next few years. In 2005, this bizarre allocation of marks was rationalised back to a simpler form of the original: 10 questions worth 3 marks, 10 questions worth 4 marks, and 10 questions worth 5 marks. There would still be no penalty for incorrect answers: the range of scores would be 0 to 120. As a deterrent to guessing over the more difficult questions, the last 5 questions would be no longer simple multiple choice questions, but would require integer answers in the range [0, 999].

The final modification to date, was in 2007 when the marks for these last 5 questions were adjusted. The AMT themselves noted that “since penalties were eliminated a few years ago there has been an increased number of tied scores”, but stopped short of acknowledging that the original scoring system, which was not broken, had been “fixed”. To ameliorate this situation, the marks awarded for the last 5 questions were increased to 6, 7, 8, 9 and 10, in that order. As a direct consequence, scores would now range from 0 to 135; as a touted consequence, the scheme would now “spread the scores of the potential medallists”. Perhaps it did; that is not as much our concern as whether these revisions of the scoring system will have confounded the data we were able to collect. Fortunately, the information pages explicitly state when such changes occurred: there should be no sudden unexpected and undocumented alterations; and so we will know if shifts in our data coincide with changes in scoring system. (As it turns out, they do not.)

{→ “<http://www.amt.edu.au/news01.html>”; retrieved 2016-05-24}

{→ “https://en.wikipedia.org/wiki/Australian_Mathematics_Competition”; retrieved 2016-05-24}

A fairly typical range of awards is given to students on the basis of their performance in the competition. The current schedule of awards is included below. Presumably these thresholds have remained historically stable; we have however been unable to establish reliable data on this.

Schedule of Awards for AMC Ranks (latest known)

Award	Junior and Intermediate Threshold	Senior Threshold
Prize	99.7%	99.7%
High Distinction	98%	98%
Distinction	85%	75%
Credit	50%	40%

Students receive only the highest award they qualify for.

We should also be aware that “awards up to the level of prizes are decided by comparison only within the region and year level of the student”. That is, “a student in a certain year in an Australian state or another country will only be compared for the purpose of a certificate or prize with other students in the same group”. This protects education policymakers in different Australian states from having to meaningfully answer questions on how the curriculum in their state compares to that in other states. It is also useful for us, in that we can be more confident that any shifts in student results are not the result of unpredicted outside events, such as the new subscription of multiple schools from an academically dominant country outside Australia (as they would only affect the competition within their own region).

{→ “<http://www.amt.edu.au/mathematics/amc/amc-awards-criteria/>”; retrieved 2016-05-24}

4.2.2 Selection of Data

The higher level of participation in the AMC allows us to use more robust measures of school mathematics performance than with science. The number of students receiving AMC prizes, for instance, is on the order of 100. Curiously, although this is a whole order of magnitude (10 times) greater than the numbers of Science Olympiad students we deal with here, the AMC prizes represent an actual relative proportion that is the same order of magnitude (10 times) smaller. Perhaps we should use the number of AMC High Distinction students then? Sure — as we shall see, the results are equally astounding.

NRPC archives contain a patchy record of AMC prize count over 24 years, and more-complete, though not necessarily more reliable (numbers seem to vary by 2 to 3 when correlating sources), records of the full range of awards over 9 years. The latest data are available from NRPC Annual School Reports {→}, matching data from NRPC Yearbooks (likely due to direct copy-paste) which extend back a bit further.

{→ “<http://www.northrockspoaching.nsw.edu.au/about/reports/>”; retrieved 2016-06-04}

5 Review :: Science

5.1 Activities, Attitudes and Morale

Under the guise of providing extension science teaching for advanced students, ANSWER agents were able to infiltrate the NRPC Science Department and perform extensive data collection and observational studies. Unfortunately they were unable in large part to provide true extension teaching, because they found a sad reality where remediation was necessary just to reach a level where extension could begin. In many ways this was surprising: visits from ANSWER agents in past decades had found a school burgeoning with extension activity, particularly in science and mathematics. It certainly looks like the school has come a long way since then: a long way down.

Observations showed a bizarre mix of attitudes within the Science Department, often seemingly inconsistent with the needs of what should be gifted and talented students. Here, we focus on 5 major areas needing improvement (“manifolds”) that paint a grim picture of science teaching at a school like NRPC:

- (A) avoidance of accountability;
- (B) bull-sewage and bullying;
- (C) chasing and claiming credit;
- (D) dimness, dullness, density, disadvantage and developmental delay; and
- (E) excuses, not enrichment.

5.1.1 Avoidance of Accountability

It is one thing for personnel to be able to perform their duties and to fulfil their roles, while free of undue external influences. It is quite another thing for staff to be able to do whatever the hell they want, free of any sensible or realistic constraints on their actions, free of any consequences. The former is “autonomy” or “personal freedom”, the latter is “anarchy” and “lawlessness”. Is it too much to hope that staff at an educational facility, work to provide an educational service? Is it too much to hope that staff at an educational facility, are held to account for the quality and quantity of the educational service that they provide?

So what should we expect teachers at an academically leading, selective school, to do? The answer is, apparently, nothing. The students at such a school have already been selected as the best students. No matter how good or how bad, how much or how little, education their teachers provide, these students will progress, and they will be able to stay on top of the low-ceiling high-school syllabus they are provided. Herein lies one of the ironies of selective school education at NRPC: teachers have to do nothing in the way of education for the students, and they will still be carried to the top of the HSC ranks. This is a theme we will come across again and again, and here it allows useless teachers to get away with not providing education at all (see also “Coaching”, above).

“Not providing education at all” may seem like a bold and heavily inflated claim, but as we shall see (“Chasing and Claiming Credit”, below), bold and heavily inflated claims are what many of these teachers are about. It is also plainly and simply true, in between what we deal with in this

section (active avoidance of accountability, that is, intentionally failing to provide an adequate education) and in “Dimness, Dullness, Density, Disadvantage and Developmental Delay” (passively failing to provide an adequate education, by being less capable than the students).

5.1.1.1 Assessment

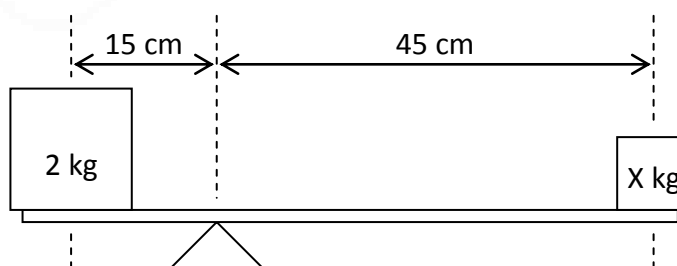
Accountability issues came most prominently to light in 2015, with the first major assessment task of the year: the science half-yearly test, or “SHYT”. Replete with spectacular and embarrassing editorial failures, observers were astounded at the garbage that some teachers dared to advance as suitable for publication. When there are more obvious errors than there are pages, the words “accidental” and “minor” are not the first to come to mind.

In just one such SHYT, the following less-consequential errors were identified.

- Clearly wrong aspect ratio for the school logo (horizontally stretched, reflecting NRPC becoming fat and decadent).
- Multiple choice question, “Experiments with cathode rays tubes led to the discovery of the particles?”, followed by a (fortunately appropriate) list of particles.
- Clearly noticeable variation in font size and font face within sentences, without good reason for the variation (examples of good reasons: quotation; code; emphasis).

In the same old SHYT, the following more-consequential errors were identified.

- Multiple choice “question”, “An example of a polyatomic ion below is?”, followed by “water molecule”, “carbon dioxide molecule”, “hydrogen carbonate ion”, “strontium chloride salt”.
- The following setup, which we have drawn here independently because the original version in the actual SHYT was too terrible to view, and had been rather obviously copied and pasted without acknowledgement (that is to say, poached), in all its crude and ugly glory.



The corresponding multiple choice question was “Which of the following values for the mass X kg will allow this balance to remain?”, with the answers “0.30 kg”, “0.50 kg”, “0.75 kg” and “1.00 kg”. Just in case readers missed some less obvious errors, they include: failure to include the units in the quantity as is conventional (but sure, maybe the authors were just being unconventional); and why would anyone expect the balance not to “remain” (what are the authors referring to by “remain”)?

- Multiple choice question, “A strontium atom Sr differs from a strontium ion in that the atom has a greater of which?” (double-spacing preserved from the original), followed by the options “number of electrons”, “atomic number”, “number of protons”, and “atomic mass”. In the marking scheme, the correct answer was of course identified as “number of protons”.

Who wrote this SHYT? In our review, we were unable to identify the individual teachers who were responsible for these embarrassing errors, because a mysterious policy had arisen whereby all teachers involved in pretending to educate a particular year level, would be required to participate in all phases (writing, editing, marking) of an assessment task run. Two explanations for this policy spring to mind: (A) it potentially reduces bias in student results (avoiding calls of favouritism and “unfair advantage”); and (B) it generates the appearance of full engagement from all teachers involved (avoiding calls of unfair division of labour). Both explanations speak volumes about the level of trust within the Department.

We all know that it is easier to trust a familiar face you know, than some nameless, faceless “source”. Perhaps this is why, in the recent climate of trust within the Science Department, yet another policy has arisen: there should be no indicators of who wrote or edited which parts of the assessment tasks. Let us cut to the point here: this is a brilliant strategy for diffusing responsibility and sharing blame. It has exactly the effects we want: protecting the underperforming staff, and punishing those who try to do their job properly. Amidst all the assessment task cover-ups, what else should we expect?

5.1.1.2 Classroom Teaching

We should expect classroom teaching cover-ups as well, of course. Having mentioned autonomy and personal freedom at the start of this section, we fully acknowledge the idea that continual audits of classroom teaching can be disruptive and impairing to the effectiveness of teachers. Fortunately, however, we also recognise that when teachers are destroying the education of their students, we should disrupt and impair the effectiveness of that process. Furthermore, good teachers {→} often find the opposite effect: they are able to benefit from having a sympathetic observer in the classroom, to help with tactical development, monitor the engagement and progress of the students, and just have someone else to reflect on ideas with.

{ISBN 0201484021; “How Children Fail” (1964)}

All that said, ANSWER operations have avoided classroom audit. We claim that this is on the grounds of being unable to blind participants to the fact that they are being audited, and hence the unavoidable bias that goes along with this. Hence we can say we have fully supported the right (if it is a right) of teachers to teach their classes in whatever way they like. We are not here to direct teachers on what to teach or how to teach it; we are here to show the evidence and let intelligent individuals make up their own minds.

Instead, we have found a way to assess the effectiveness of classroom teaching by each teacher: the use of student assessment tasks! While this may be obvious and unsurprising to most readers (assessment tasks do not just assess the students, they also necessarily assess the teaching which those students have received), it is the way we use the assessment tasks that is marginally more innovative. All we need to do is to look at the way that teachers react to the contents of and results from the assessment task.

Teaching in the current era is very much an interpersonal profession. Teachers often feel closely involved with their students, entirely in line with the nature of the work (who else do students spend 6 of 24 hours a day with, 5 of 7 days a week?). There naturally tends to be some emotional attachment, and many teachers will feel that the achievements and performance of their students reflect not only professionally but also personally on themselves. Thus, when students are given

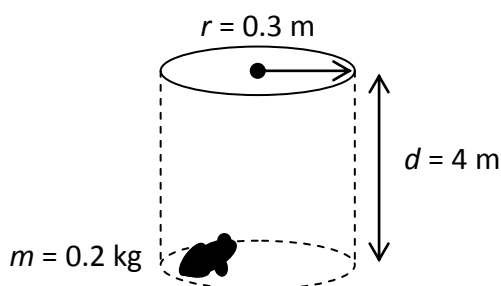
an assessment task, the fact that their results depend at least in part on their experiences in the classroom, makes the teachers feel challenged as stakeholders in this process as well. Again, it is how they react to that challenge that tells us who they are.

In recent years the objections that perhaps stand out the most (and may possibly be the most common) are complaints that questions or tasks are “too hard”, or with similar insinuation, “not in the syllabus”. There appears to be an expectation that students should be assessed entirely on how well they operate within the bounds of a well-defined, heavily-restricted universe that is completely delineated by an impoverished curriculum document, or even worse, “the textbook”.

At this point it is worth reminding ourselves that as an academically leading selective school, NRPC should have many of the most intellectually capable students to work with. Let us not forget that these students have performed relatively well in tests of aptitude, and would often have been the most advanced students in their previous schools. Perhaps they are unfamiliar with failure, or with the perceived threat of other intelligent minds substantially competing with them; however they should be no strangers to higher intellectual challenges. Indeed, if they are not comfortable with higher intellectual challenges, that raises important questions about the types of students selected (including poached) into this school. We talk briefly about student wellbeing (unlike the school administrators, who obsess ceaselessly about it despite contributing little to ensure that wellbeing) later, but for now confine our suggestion to the idea that: if a student is unable to meet the intellectual demands of what is already established to be an academically leading selective school, then as a matter of fact the student does not belong at an academically leading selective school, no matter what the student, caregivers, or teachers desire. Meeting inappropriate desires is not a wellbeing issue; having an appropriate learning environment is.

Back to the main point here, we have the most intellectually capable students at NRPC, and yet we have the most obstinate, inflexible teachers complaining that assessment tasks are “too hard” and “not in the syllabus”. Observations suggest that these cries are loudest when the assessment tasks refer to topics that the particular teacher has not covered in class yet, or has not covered at all because the teacher is incapable of teaching them. Observations also suggest that in general the least capable people are usually the most obstinate and inflexible, probably because they have been too stubborn to learn new things, as well as being so overwhelmingly familiar in their own limited worlds that their inability to see past the walls is indistinguishable from a refusal to do so.

Example question. A frog of mass $m = 0.2$ kg sits at the bottom of a circular well of radius $r = 0.3$ m and depth $d = 4$ m. Whilst the idiom that this example alludes to resonates with the situation at NRPC, the real physics question is: what is the lowest resonant frequency for the well, if the speed of sound in air is $v = 300$ m/s?



The ability of students reflects the ability of the teacher. Assuming that the teachers have enough intelligence to recognise this fact, it is no surprise that they would try to shut down the use of more difficult assessment tasks for their students. As a teacher, it is embarrassing enough if your students are unable to solve more challenging problems that could reasonably be expected to be within their capabilities. What is more embarrassing is that many of the NRPC science teachers are less able to solve such problems than the very students that they teach. Faced with this very real threat of being shown to be incompetent by having their students challenged, these teachers do exactly what we would predict: try to prevent their students from being challenged.

Whenever the incompetent teachers find an assessment task question that is beyond their ability, or beyond what they have “taught”, their response is to complain all the way up the executive hierarchy until they get what they want: all the challenging questions deleted from the test. In a dazzling reflection of the quality of the executive hierarchy, it seems that all too often, they really do get what they want. Unfortunately for anyone who cares about the wellbeing of a gifted or talented student, what these teachers want is very far removed from what the students need.

Concerns that questions in an assessment task are “beyond what has been taught” are classic indicators of the detrimental “teaching to the test” approach. For these teachers, when a question is beyond what has been taught, the easy answer is to “fix” the test. None of them would dare, try, or bother to actually do the right thing, which is to provide better teaching to their students. It may not even be that they choose to avoid improving their teaching: they are probably so incompetent that they are unable to.

Another symptom of “teaching to the test” is the astonishing obsession that some teachers, and hence students (or does the infection spread the other way?) have with word-for-word memorisation. This obsession encompasses to syllabus content, textbook lines, and really anything they are presenting or presented with. It seems that when all you have is a cognitively restricted, intellectually impoverished little world, then knowing every last little thing within it is more important than the ability to step outside and meet the challenges of the wider one.

We could teach students to go beyond the syllabus, to explore what there is to learn and discover their ability to solve problems in general. Instead, at NRPC, we find these directions too vague and the results too nebulous to measure (forget the irony of using measures of general ability to select students for enrolment in the first place), so we uphold accountability far more by using a proven method we call T5: “Textbook Teaching To The Test”. Never mind that the only thing it is proven to do is to ruin the intelligence of formerly intellectually advanced students by turning them into data storage media; the more important thing is that we can point to a specific line in the syllabus for every single thing that we teach, and match it to the corresponding question in the assessment task. How much more accountable can you get?

5.1.1.3 Accountability: Discussion

Clearly a sore point when reviewing NRPC, accountability is one of the mechanisms by which organisations maintain integrity. Avoidance of accountability, naturally, weakens the resilience within these organisations, and opens the door to decay. It is unclear why existing staff in the executive hierarchy have so lightened the requirement for accountability (Is it because they are undertaking clandestine activities and fear discovery? Is it because they are too incompetent to enforce stronger requirements?), but it is clear that the consequences are dire. Even if they were

trying to hide their own indiscretions by avoiding accountability, surely they must be intelligent enough to realise that once they lower the fence, they are simply inviting trouble that will be far more evil than they are.

We have seen a few of the strategies that NRPC staff use to avoid accountability. Unscrupulous readers should take heed, learn these lessons, and implement them in their own schools.

- Diffuse the responsibility for producing all grades of SHYT, by involving every teacher and identifying none of them. Hence (and otherwise) punish good authors and reward bad ones, inspiring more teachers to follow suit and write garbage.
- Use the T5 method, proven to ruin the better students and produce more data storage media. The focus is to be seen as doing exactly the desired thing, but with little depth of field so that the consequentially terrible results are too blurred for the audience to realise how bad things are. We could even call this “T6”, short for “terrible T5”.
- Refuse to provide or endorse class work or assessment tasks that are more difficult than the least capable teacher can handle. If education is to prepare students for the “Real World”, they need to learn that this world is made for them: just like teachers can ensure that tests contain only what they have taught, students will only ever encounter familiar situations that they are fully prepared for. This is what wellbeing means, and at NRPC wellbeing is what we stand for.
- Exclude challenging components of assessment tasks (“dumbing down”), thereby increasing average reported student marks (“prettying up”). This is a move that has simultaneous benefits of insulting the intelligence of students, as well as decreasing it. Once the students are this stupid, they will thank the teachers who ensure they only have easy questions, and then keep thanking them for the high marks that they get.
- Keep treating students as too stupid to realise that even if we increase the marks that everyone gets, it does not necessarily have any effect on their relative ranks. They will not understand the implications of ceiling effects either, so we have our SHYT-producing systems covered. The same would also apply to the annual review science examination in its entirety, or, so to speak, the ARSE whole.

It is a sad situation to have, when teachers gain traction with students by prettying up their test results with easy marks. The students become complacent, and eventually too stupid to realise that it is through being challenged that they will improve the most. If we spend 6 years at NRPC destroying their ability to think, then at the end of it all they will want is good marks and easy tests, and that is what we offer!

What can we do to restore accountability? Probably nothing. Teachers are answerable to the Head Teacher of each department, and through this hierarchy ultimately to the principal — but who is the principal answerable to? Not the students or their caregivers, because the real results could be an absolute disgrace but still nobody cares. At least we stick to the syllabus, we have easy assessment tasks, and the marks look good.

At the end of the day, students and caregivers get the teachers they deserve. If you rock up to school demanding to know which part of the syllabus the teachers are covering, when they are instead working to inspire students to go above and beyond a document that describes the bare minimum that would be expected for a population of academically leading students, then your demands will be met. In a good school, these demands will be met with derision. At NRPC, these demands will be met with T5.

5.1.1.4 Accountability: The Future

Seriously though, independent externally-written assessment tasks would resolve many of these problems. The school has developed an unfortunate culture where marks and rankings are all-important, supplanting the real purpose of teaching in the first place. What happened to assessment to discover the capabilities of students, their strengths and weaknesses, and where their skills can be extended or improved? If those who make the big decisions at NRPC were able to swallow their pride and take on board objective assessments, the results would be meaningful and very informative. The teachers would also show us their true colours, in reacting to such challenges.

Some might argue that the NRPC teachers have already taken on board objective assessments, in the form of independent externally-written competitions. True enough; and the results certainly tell us the story, as we shall see.

5.1.2 Bull-Sewage and Bullying

Morale appeared to plummet in 2015 but the school executive used this as an excuse to persecute the Old Guard (see 5.3 Reanalysis of Internal Evaluation Findings) rather than an opportunity to examine the underlying causes and fix actual real problems that had crept in over the years. The crisis can be traced back to changes to staff at the start of 2015, but for unclear reasons, acknowledgement of this has been deferred or in fact avoided.

It is said that the NRPC farm has from time to time had a resident male domesticated ungulate. In fact, the stylised likeness of one of its close relatives features prominently in the school logo. The existence of such an animal is not particularly relevant here, but to provide an opportunity to state that most of the sewage produced at the school originates from elsewhere.

What is perhaps more relevant is the school motto, which loosely translates to “all talk and no action”. Over the years, teachers at NRPC have become increasingly known for their outlandish claims, which are typically not in themselves nonsensical but in the context of a patent inability by those teachers to substantiate them, worthy of the descriptor “bull-sewage”. Students learn from their teachers, as we have recognised previously, and sadly we must now prepare for large cohorts of graduating NRPC students who produce many words but very little value.



One example of such preposterous claims is in ironic assertions about the importance of student wellbeing at NRPC. Aside from failure to address the most pressing matters of gifted and talented student wellbeing (“all talk and no action” again), irony arises when senior, more-“experienced” staff allude vaguely to student wellbeing as a justification for bullying junior, less-“experienced” teachers over their approach to assessment task setting and marking. If the rumours are to be believed, junior teachers have been forced to retract innovative questions that they spent hours thinking through, in preference for the questions that senior teachers did not even write but

simply lifted from elsewhere. They have been forced to give away free marks to students who wrote incorrect answers, because the marking criteria appeared to disadvantage some classes over others.

We should take a moment to reflect on what the approaches in question are, to see the full irony of the situation. We assume that it is understandable for junior teachers to expect students at a school like NRPC to be able to cope with difficult and challenging tasks. These teachers might even take it upon themselves to produce challenging questions at an appropriate level of difficulty for the students, many of whom (we assume) are gifted and talented. Bold assumptions, to be sure, but this is NRPC after all. For senior, more-“experienced” teachers to then turn around and reject those contributions out of hand, citing excess difficulty and the need to encourage students with insultingly easy questions, is altogether unreasonable and certainly seems like bullying.

Do these senior, “experienced” educators think that gifted and talented students need to be pampered and indulged with easy questions that we know they are able to answer? Do they seriously think that insulting the students is a creative way of improving their wellbeing? In the sense that complacency is contrasted with anxiety, perhaps so — and maybe this is what the senior staff think. What we know at the ANSWER is: giving students insultingly easy tasks prepares them poorly for difficulties and challenges in the real world. We can assure you, the long run with this kind of strategy is a run into trouble.

The same kind of argument would support encouraging athletes to sit on the couch and passively entertain themselves, because it would be too much of a physical challenge to get up and exercise. “No pain, no gain”, right? Nobody seems to take issue with pushing athletes to succeed. When we want to intellectually challenge our students, though, all of a sudden we are up against this overwhelming resistance.

Reflecting again on the aforementioned approaches, this time in marking assessment tasks, there have been reports of junior teachers being forced to mark incorrect answers correct, because “that is not what the students were taught (by the senior, more-“experienced”, teachers), and it is not their fault as students that they were not taught the right thing”. The whole bull-sewage line about disadvantageous marking criteria, turned out to be a cover-up excuse for “it is unfair to mark students incorrect when they were taught the wrong thing”. At least equally concerning, some questions were cancelled after other teachers gave instructions contrary to the clearly written instructions on the test paper.

Fine then. Let us assume that senior, more-“experienced” teachers are competent enough to continue being teachers, and that they are competent through having been teachers. Despite this, if we believe the rumours, then it is these teachers who taught the students the wrong things, and it is also these teachers who find it too difficult to read instructions that are clearly written on a test paper. However, competent teachers do not make these incompetent errors. The result is a proof by contradiction: our assumption that senior, more-“experienced” teachers are competent, is false.

Further suggestions of bullying have arisen from reports that senior, more-“experienced” teachers are routinely dismissive of innovative ideas from junior teachers. The typical rejection plays out in “been there, done that” fashion, with senior teachers carrying a “we know more than you and we know better” attitude. This is not the end of it, though. Sometimes the junior teacher carries through with the innovative idea anyway, recognising that the senior teachers are simply being

obstructive. When the innovative idea turns into resounding success, the “been there, done that” gang show up and say “see, this was our idea all along!”.

Which kind of leads us to our final point in this section: rumours that more-“experienced” staff lied on their résumés (probably including false claims of credit; see above and below). What awesome role models we have, here at NRPC. We certainly cannot blame the students for being taught the wrong things.

5.1.3 Chasing and Claiming Credit

In clearly contrasting counterpoint to the avoidance of accountability in the Science Department, there seems to be a readiness, and indeed directed efforts, to take the credit for the work of others. This is often also referred to as “poaching”, and is of course what our review is about! Together with the avoidance of accountability, the tendency of NRPC staff to claim the achievements of others (other staff, other students) forms the basis of their “I take the credit; you take the blame” culture.



Teachers who are unwilling or unable (usually both) to produce quality work of their own are well-represented among the culprits here. In a system lacking accountability, where staff are encouraged to conceal their part in producing (say) the SHYT, the flip side of this lack of transparency is that any joker can simply come along and claim that work is their very own doing — and nobody will be able to prove otherwise. This of course poisons the Department, and other staff or students are less likely to strive to achieve, because of quite justifiable concerns that their work may be unfairly taken from them and passed off as that of someone else.

5.1.3.1 Plagiarism

Incompetence leads some, perhaps many, teachers to simply steal resources and pass them off as their own. This includes stealing parts of multiple resources, and compiling them into hand-outs, then claiming ownership of the aggregated product. Serious educational institutions impose serious punishment for this kind of academic misconduct. NRPC does not even pretend to have this level of integrity, with its “anything goes” approach to the HSC, a philosophy despite which it is losing ground anyway.

All teachers copy pages from the book, sometimes. We are not talking about the occasional reproduction of material for critical review; nor are we talking about making user copies of archive material to protect the physical state of the original. We are talking about teachers making unauthorised copies of work done by others, and then crediting themselves as the originators of that work. NRPC Science Department bookshelves, drawers and filing cabinets are overflowing with examples of plagiarised worksheets and reading material, as are the folders and school bags of the students.

A quick browse through these collections would reveal that most of them are of hopelessly low quality. More comprehensive reading of them only reinforces this conclusion. Unfortunately, the alternative for the students, in terms of content, is worse: the “teachers” in question have not the slightest chance of producing original material that is even remotely better. Paradoxically, these are the more-“experienced” “teachers” who are most eager to plagiarise — we can only assume on the basis of being most familiar with the ways of getting away with it.

Fortunately, at least some of the students are more intelligent than these “experienced teachers”, and are aware enough that they can recognise when material is simply taken second-hand, even when it is unattributed (which is the whole point). Some even treat it as a game, to try to find out what the source of the stolen content is. Ultimately, however, the news is bad: although most of these students started off recognising it for what it is (theft), they gradually learnt from their excellent role models and will shamelessly copy all forms of literature without a second thought. In fact, there may not be even a first thought.

5.1.3.2 Flagrant Misattribution

Having gotten away with plagiarism of so much, and for so long, the “experienced teachers” have moved on to far bolder and more daring manoeuvres. Rather than copying something that is already established (“me too”), why not steal something outright (“it’s mine”)? There is nothing as convenient and as beautiful as taking the work that someone else has done, before it has been published, and putting it out there with your own name on it first.

This strategy is as elegant as it is flawless: the author has been brushed aside, nobody can trace the stolen content back to its true origin, and once priority has been established, anyone else who uses the content will be accused of stealing it from the thief! Mere mortal humans would find this scenario unimaginable in reality, and so it will be even easier to make them believe this Big Lie. Worse, with senior and “experienced” Science Department staff avoiding accountability by covering up the truth (such as responsibility for the SHYT), they have now created the perfect environment for this dirty opportunism to proliferate.

The pattern is the same everywhere: senior and “experienced” staff bully other staff who are more junior and enthusiastic, into doing the bulk of the work that the senior “experienced” staff then take the credit for. “Write the assessment task.” they say, and then “I’ll sign off on the final version, thank you very much, you can put my name there, and you should feel privileged to have worked under my direction.”. In other cases, they might demand teaching plans or marking guidelines for one task, and then rebrand the exact same product as their own for a different class or task.

Again, we would do them no justice to pretend that the students did not notice, or failed to learn from the whole exercise. Oh no, not in the least. A whole generation of students cannot wait to get in on the scheme, and put themselves down as first author of publications they did not write.

5.1.3.3 Historical Revisionism

Who here among us remembers attending NRPC back in the 1990s? Very few of us, if any! How convenient that is, for the recent and current teachers who would like us to believe that they are every bit as capable, and every bit as successful, as their predecessors. How much easier it is for

them to claim that they are the first teachers to have created this amazing product, or achieved this impressive result?

Those of us who have gone on a date with a young, good-looking, potential mate who we met online, will know that we cannot trust everything that we read. That said, the motivations and the stakes for writing a piece for a school Yearbook are surely different to those for internet dating, so perhaps we can trust the Yearbook more... or can we? Perhaps someone made it all up, when they wrote about programmes that were run in 1993 and in 1995, some which continued, some which did not. Perhaps it is the later claims that are true, when others have come along and told us that they (the others) were the first ones, and started these programmes in 2001.



What they are talking about, of course, is the science enrichment and Olympiad training programmes (and the mathematics enrichment programme). The (somewhat interrupted) stream of NRPC Yearbooks contains a fairly regular commentary on what has been happening in science and mathematics at the school, and provides what we assume is a fairly reliable historical record of achievements in these subjects. This record belies many of the claims made by more recent NRPC executive, science and mathematics staff. Although we talk about it here in science, this is more pertinent to mathematics, where as we shall see developments have been inexcusable and embarrassing.

It is not in the interests of many recent NRPC executive, science and mathematics staff to allow reviewers or interested observers to easily find such historical information. Consequently, there have been no moves to modernise the school archives, and indeed current staff have avoided drawing attention to the fact that these archives may exist. We believe that they have stopped short of actually destroying material in such a valuable collection, but amidst all the cover-ups, secrecy and censorship, who knows?

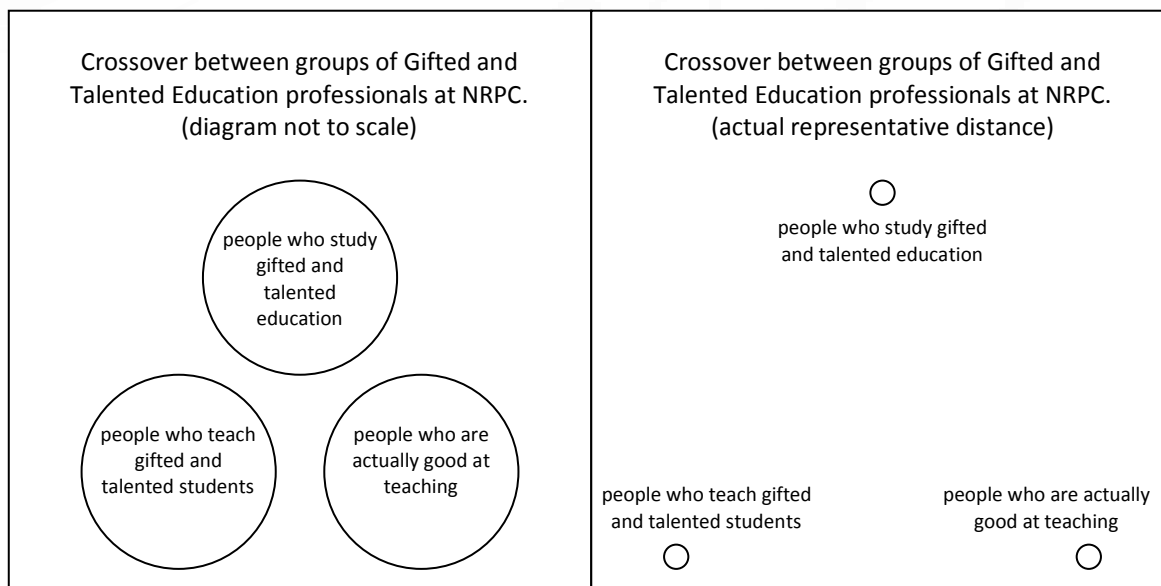
5.1.4 Dimness, Dullness, Density, Disadvantage and Developmental Delay

Most people with some common sense would expect that at an academically leading school like NRPC, where the students are presumably gifted and talented, the teachers might also be intellectually capable of providing the most effective education at a level suited to such students. This common sense, unfortunately, does not seem to filter through the processes that recruit and retain staff at the school.

The idea that gifted and talented students should not need good teachers is dealt with elsewhere, and is of course bull-sewage — but given that this idea is likely to crop up from time to time, it is worth mentioning. In comparison, would we say that our best athletes can win on their own, and should not be given the best trainers and coaches we can offer? More generally speaking, there are different styles of teaching, different teachers, and different students, so the idea that there is a simple “best” out there is quite ridiculous. Teachers who are better at teaching gifted and talented students may well be less appropriately skilled to teach delinquent students, unless perhaps they have gifts in being antisocial or a talent for criminal activity.

Which brings us to an important point: what makes teachers good at teaching gifted and talented, intellectually advanced, students? This is another area in which there is always plenty of talk, but very little action. Perhaps the problem is that most of the time, there is no crossover between the following three major groups of professionals:

- people who study gifted and talented education;
- people who teach gifted and talented students; and
- people who are actually good at teaching.



We shall play to the “ivory tower” cliché here, when commenting on people who study gifted and talented education. There probably are in fact researchers who have taught or are good at teaching, but here we cast doubt on the idea that most of them fall into this category. In contrast, we suggest that most “G&T” research is performed by academics far out of touch with the reality of the classroom, and is invalidated by an excessive focus on either the “G&T” or the “teaching” side of things to the exclusion of the other. As we have an alternate-real school, NRPC, in front of us, that will be all that we say about disconnected research.

Instead, it is time to throw dirt at the people who actually teach gifted and talented students. At an academically selective school (like NRPC), we might hope that former students of selective schools may be represented on the staff, given that they would be most familiar with the situation that their students find themselves in. The presence of alumni “giving back” to a school would be advantageous in many ways, not least because of potential camaraderie between teachers and students which strengthens the educational relationship. While it is true that a very few of the teachers at NRPC are ex-students, what is more telling is the number of them that have been encouraged to take their educational work elsewhere. The opposition to the return of former students appears strongest from the Mathematics Department, so it will be dealt with later. For now, we merely observe that this attitude among existing staff compounds an already significant shortage of selective school graduates because as we know, NRPC students invariably become medical or legal practitioners: work highly suited to trainees of a T5 flavour.

As a result, most of the teachers at NRPC are not from selective schools, and we can only expect their corresponding intellectual capability to be representative of the remaining population. If we follow this line of reasoning to its natural conclusion, we must realise that the average teacher at

NRPC will be of lower intelligence (at least in general ability) than the average student. This has exciting implications for the education of the students, of course: given half a chance, they could quickly and easily overtake their teachers in what they are learning. That they usually do not, would therefore suggest that something else is going on. We must be not even giving them half a chance!

Any good gifted and talented teacher will hold to the line that if they have done their job well, their student will be better than the teacher. How then have we ended up with a situation where the students at NRPC are failing to meet that potential? Something must be holding them back: what? The correct question is actually “Who?”, and the answer is “all the relevant stakeholders”. The students themselves, their caregivers, their teachers — all of them are to blame.

A pervasive culture of limiting students can only be pervasive if all three of the above groups willingly follow it. Students are told to “not rock the boat”, to “respect their elders”, and to put their heads down and do what they are told. It is their caregivers, in cahoots with their teachers, who tell them these autonomy-suppressing things. Worst of all, we have the teachers, feeling threatened by the superior intellect of their students, trying to turn the tables by intimidating the students and ensuring that there will always be downward pressure on the rising ability of those students. This is no mere speculation, either: it fits closely with the attitudes that enable the same senior and more-“experienced” teachers to be dismissive of junior teachers, an attitude of “we know more than you and we know better”. Teachers at this school feel that they must always be better than the students in some way, and unfortunately, it is better at being bullies.

Bullying (and bull-sewage) has been dealt with earlier, but in any case, the result is as unfortunate as it is clear: the students could progress much faster, but they are being held back. This is a real problem of developmental delay, and is every bit as relevant to equal opportunity considerations as any other form. In fact, we would argue that the impact of this kind of developmental delay is even more significant, because of the correspondingly greater productivity that gifted and talented students could offer if they were only given the opportunity. It is sad that the current teachers at NRPC seek to deny their students that opportunity, by implementing strategies to maintain their own primacy in the school: suppression of student advancement; and exclusion of teachers better than themselves for fear of being shown to be incompetent.

It is too sad a note to dwell on, so forget about this deliberately imposed developmental delay for a moment, and consider the idea that it may not matter too much if the teachers are less intelligent than the students, as long as they are good teachers. This is probably true, but again at NRPC the students find themselves fleeced. There certainly are a good number of sheep on the farm, but when school is in it always seems like there are hundreds more in the classrooms. We already know that good teachers in general are hard to find. They are harder to find at schools like NRPC where seniority and “experience” hold more sway than competence and capability. Welcome to the real world, students!

What do we mean by “good teachers”? Of course, there are many varying practices that are appropriate for varied student populations. Broadly speaking though, good teachers are able to engage a range of students who have a range of needs, they are able to guide students effectively through their course, and they are willing to learn themselves to keep that guidance ahead of the students (even if they themselves are not “ahead” in the content). The more general interpersonal skills required of any such professional are simply assumed here, and go without saying.

What we commonly see instead at NRPC is a bunch of self-important teachers, pridefully standing in their assumed superiority, laying on their “experience” thickly as an excuse not to adapt to the different and changing needs of students. Good teachers? Not these ones. With attitudes like this, what chance is there that they will listen to and engage students? What chance is there that they can guide students through a dynamic and modern course in science? What chance is there that they improve their teaching by sitting down to learn more about their subject, their students, or their profession?

No chance, of course, and instead they continue to engage in archaic and ineffective (it is doubtful that it was ever particularly effective) methods like writing essays on the board and distributing plagiarised photocopied resources. The ones who are a little more careful get around the use of unauthorised reproductions by having the school purchase and lend students textbooks, giving us an opportunity to look at how good they are at selecting good textbooks.

A force always involves two objects

A force is not simply a push or pull—it is a push or a pull resulting from an interaction between two different objects (or people, or plants, or anything at all). One object exerts the force and the other object experiences the force. The object exerting the force is called the **agent**. The object experiencing

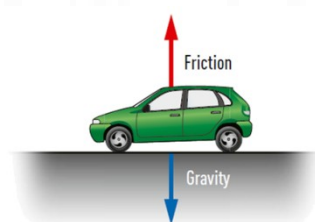


Figure 8.22 A force diagram showing the balanced forces acting on a stationary car.

Weight is a measure of the force an object pushes down on the ground due to gravity. It is a force, and so it is measured in Newtons. Weight is calculated by multiplying the mass of an object with the force of gravity it is experiencing.

{ISBN 9780195577549; Oxford Insight Science 7 Australian Curriculum for NSW Student Book (2013)}

		18
		2 H 4.00 Helium
17	9 F 19.00 Fluorine	10 Ne 20.18 Neon
	18	18

{ISBN 9780195577563; Oxford Insight Science 9 Australian Curriculum for NSW Student Book (2014)}

Would you want your child to learn this? These errors are inexcusable, as is the selection of these textbooks in the first place. The ANSWER is at a loss to explain why this particular series of textbooks was selected as go-to references at this school, so we ask: were there any previously undisclosed but relevant competing interests (potential or actual)? One contributing factor may be that just as senior teachers need to plagiarise content, nobody at the school is actually able to produce anything better — so guess what we are left with.

In this section we have seen how the dimness, dullness, and density of most of the teachers at NRPC lead to severe developmental delays in the student population. These are students who could progress in their education much faster, but for various reasons they are being held back. This constitutes an unfair disadvantage, which the school and its staff should be held to account for.

Hence, and finally of the 5 manifolds...

5.1.5 Excuses, not Enrichment

In the 1990s, NRPC rose to prominence through the ranks of academically leading schools, carried on both its HSC performance as well as its achievements in higher-level competitions. Much of this success can be explained in terms of its selection of the correct students (selection bias and poaching, as discussed earlier), but data salvaged from the archives (which the ANSWER was able to retrieve safely away from the grasp of the historical revisionists) paints a much bigger picture.

5.1.5.1 The Age of Innovation

The 1990s was an era of educational innovation, of unprecedented and unmatched advancements in the education of gifted and talented students at NRPC. A truly dedicated team of teachers poured time and effort into the introduction and development of new enrichment programmes, year after year. Our interest in this review is in science and mathematics, and both of these departments certainly made their fair share of progress. The changes are extensively documented in NRPC Yearbooks, but knowledge of this has faded quickly with time, with newer generations of NRPC staff seeking to minimise public awareness of just how far back they have fallen.

In science and particularly in mathematics, the Yearbooks tell a story of how specific individual teachers, with the full support of their executive, started a range of innovative teaching activities. Note that all the programmes called “Enrichment” in the list below actually constituted extension teaching to at least Olympiad level; a separate “Science Enrichment” stream did develop through the years which could be more aptly described as “entertainment”.

- In 1992, Year 10 students taught primary school students who had been invited to the school to experience “hands-on” science.
- In 1993, Science Enrichment commenced, with backing from a major university.
- In 1993, Mathematics Enrichment also commenced for Years 7 and 8, yielding spectacular results over the next 4 years.
- In 1994, recognising these impressive results, aspects of the Mathematics Enrichment programme were incorporated into general mathematics teaching at the school.
- In 1995, Chemistry Enrichment commenced, modelled on a Physics Enrichment programme run through a major university the previous year.
- In 1998, Informatics Enrichment commenced, provided by a current student who had competed in the International Olympiad in Informatics.
- In 1999, Biology Enrichment commenced, provided by a student who had competed in the International Biology Olympiad and had recently graduated from the school.
- In 1999, Physics Enrichment also commenced, with help from a university lecturer.
- In 2000, Extension Science Tutorials commenced, provided by a current student who went on to compete in the International Olympiad in Informatics, and the International Biology Olympiad. This program was the first incarnation of what was to become the Free Accelerated Science Tutorials, a decade later. It was also the last advance for a decade, yielding a “Chain of Success” that was to last 13 years. These results will be detailed in section 5.2 (Performance) below.
- In subsequent years, innovation took a back seat, or shall we say was relegated to the rear trunk closed off from fresh air; Yearbook depictions reveal only “more of the same” developments as previous years. The next development of any note was too late to arrest the decline that ended the Chain of Success, as we shall see very soon, when we explore the performance of NRPC in the sciences.

- It was not until 2011 that the Free Accelerated Science Tutorials commenced in their present form, not under the direction of NRPC staff, but independently conceived and provided by a returning student who had created another smaller Chain of Success at a Melbourne school, after moving to that beautiful city for a few years.

5.1.5.2 The Age of Complacency

By the early 2000s, the innovation had given way to complacency. Certainly there was an understandable and forgivable willingness to stick with a formula that had worked over the previous decade, but the failure to keep up with changes in the world around them has left the Science Department (and NRPC in general) on the back foot. Less forgivable was the self-congratulatory attitude that began to permeate staff and students alike, undermining their will to improve.

It was a story reminiscent of nations basking in their own glory, oblivious (and often intentionally so) to the growing competition from the rest of the world. “NRPC is the best” they were thinking, “we are so far ahead nobody can catch us”. They had built an empire on academic achievement in the 1990s, and once they were dominant in this field, they saw themselves as the archetype of successful teaching and learning. “Our methods are the best”, and they were. “The NRPC strategy gets the top results”, and it did.

What they failed to recognise was that the rest of the world will carry on, and those who are second-best, if they “persevere” for long enough will one day pose a real challenge to the supremacy of those in the lead. With no imagined reputation to lose, and an upper benchmark to compare themselves to, the runners-up can focus on catching up. In the last decade, the willingness of other top schools to try new teaching strategies and embrace new technologies has helped them to progress, while NRPC remains stuck in the 1990s. Anecdotal reports suggest that uptake of modern technology is greater in comparable schools, for example with the purchase of multiple 3D printers.

Example question. Many textile workers during the industrial revolution tried to inflate the value of their labour using hot air produced by the burning of cotton factories. Comparably, many NRPC workers during the global computer revolution tried to inflate their self-image by blowing hot air and inflaming legitimate debate about updating teaching methods to keep up to date with new technologies. The real chemistry question, however, is: what volume of carbon dioxide gas at 210 °C would be produced by the complete combustion of 1 tonne (1000 kg) of cotton? Assume that cotton is entirely cellulose, with formula $(C_6H_{10}O_5)_n$, and that ambient atmospheric pressure is 101.325 kPa.



Teachers in many other schools now engage with their students through the use of portable electronic communications devices (such as “smartphones” and “tablets”), both outside school times, as well as in the classroom. In contrast, NRPC staff tend to see the active use of electronic devices in the classroom as a threat to their authority, preferring instead to rely on students copying handwritten notes from the board into booklets, and on the distribution of vast quantities of unhelpful paper resources. NRPC consumes an estimated 4 000 000 pages (often plagiarised, as discussed above) of A4 paper in photocopying alone, each year. Many of the teachers seem to take immense pride in this abuse of cellulose, too: in an ironic twist, instead of the burning of cotton factories centuries ago, teachers now ban the use of silicon-based information technologies on their turf. This is in direct contravention of the recommendations of the Digital Education Advisory Group {→}, which include “Moving to a ‘bring your own device’ learning environment” where “students and teachers have access to smart devices, where possible, capable of connection to the internet”.

{→ “https://docs.education.gov.au/system/files/doc/other/deag_final_report.docx”, retrieved 2016-06-18}

Faced with recommendations like these, we anticipate the inevitable excuse that it would be unfair to rely on technology that not all students may be able to afford. Such an excuse, if (when) any NRPC staff dared to make it, would be absolute garbage: the school is prepared to spend hundreds of thousands of dollars on a gymnasium that students do not need. Even if we were to consider the provision of “smart devices” a recurrent cost, the \$40000 that the school would save each year in photocopying (at a conservative estimate of \$0.01 per page) would completely cover the new purchase of \$300 tablets for every single student of an annual intake of 133 students.

The building of teacher capacity may well represent more significant expenditures through all of this. Certainly, many “experienced” teachers who were present during the Age of Complacency may be unfamiliar with the new approaches for learning, that are enabled by modern technology. Professional development takes time and money, and typically more so for the stubborn “experienced” teachers who prefer to cling tightly to their familiar, obsolete methods of instruction. This must surely act as a strong deterrent for the executive staff among them, from seeking to modernise the school. The solution is simple: stop paying these useless outdated teachers for failing to keep up with current best practice, and dare to take on a new generation of fresh and engaged teachers who are willing to learn. Unfortunately, we are unlikely to witness any such revitalisation at NRPC in the near future, as “experienced” staff have the most to lose and will not be loosening their grasp on power anytime soon.

5.1.5.3 The Age of Arrogance

By the late 2000s, complacency was no longer the correct term for what can now be described only as conceit. For example, as we see later (6.1.2.1 Inappropriate Pessimism), in 2012 a revision of the internal mathematics syllabuses predominantly involved deletion of the enrichment components, reversing years of enhanced mathematical education. There also seem to be concerning inconsistencies between the depictions in the Yearbooks, and what students of the time recall of their experiences. Major changes in leadership at the school drove major changes in direction, and new executives were installed who were remarkably willing to take credit for the success of others, yet contributed little (if any) to such success themselves. We have already extensively discussed historical revision and the poaching of credit, so we will move on to other themes.

The constituents of NRPC had previously recognised that they were far ahead of the others because of the things they had done, but now their sense of reality was turned around. Now they believed that they did the things they had done, because they were so far ahead of the others. “NRPC is the best” they still thought, but “anything we do must therefore be the best way to do things”. It was a perception retained by the outside world, or at least among anyone with an interest in NSW high schools.

This self-importance was manifest in the usual variety of ways (there is nothing special about the NRPC brand of arrogance). “Experienced” teachers and students would laugh off any suggestions that they could improve the way they do things. They would dismiss, humiliate, and even intimidate others who advanced innovative proposals, occasionally poaching the ideas but usually simply ignoring them. They continued to charge down their paths of least resistance, failing to learn from others, failing to accept that the world was changing, and failing to realise that everyone else was catching up and no longer held them in such inappropriately high regard.

The Age of Arrogance at NRPC continues, undermining its own foundations in the process.

5.1.5.4 “Experience”, not Excellence

What happened to the innovative enrichment culture that once made the school great? Perhaps the transition to complacency and on to arrogance was inevitable. In a society where individual achievement and recognition are so highly valued, the progression seems natural, almost expected, in the long term. Over the time scales that individual students may see, changes are small and barely noticeable; along with the laziness inherent in this society, they may therefore have failed to exercise due care in preserving the Age of Innovation from decay. We take a closer look at what has changed, to maybe prevent some of these mistakes from happening again. We are also sure that those same mistakes will continue to happen regardless.

The frog in the well question, and the burning of cotton factories question, are the kind of creative questions that NRPC teachers used to write, for internal NRPC assessment tasks. Other schools in the past would obtain copies of these tests at a high exchange rate, and treat them as gold (or whatever precious material was most fashionable, so to speak). Students at NRPC derived respect from their ability to handle such challenging assessment tasks. Those were the Bad Old Days when things were too serious, however, because now NRPC is most celebrated not for the ability of its staff and students, but for entertainment value when its newer, substandard publications have made it the laughing stock of other, emerging, top-performing schools.

For any careful observer, it is easy to see how such a situation could have come about: where previously NRPC staff promoted “the pursuit of excellence”, they now fell back onto “the professing of experience”. They had become so comfortable in their domination of the HSC, under its low ceiling, that they blinded themselves to visions of anything further. In another ironic twisting backflip, in spite of their protests that they were not merely an HSC or ATAR factory, when they realised that they had nothing else to show for their self-congratulatory boasts, that is exactly what they retreated to. “We are still the leaders in the HSC” they say; “we are the best at covering the syllabus, completely and in perfection... because we have been doing it for 20 years”.

Therein lies the key problem, of course, which we can express most simply as: repetition is not experience. Spending a lot of time doing the same thing over and over, again and again, more

than once, at least two times, twice or more, is not experience, it is repetition. Practice may make perfect, as the idiom goes, but it does not make experience. Readers will probably understand our meaning fully in trying to answer the following question.

Repetition is not experience. Who has more experience: (A) a teacher who has taught for 8 years, at 3 different schools in 3 different countries, to students at different year levels from senior primary school through to senior high school, in different science-related subjects; or (B) someone who has spent 25 years at NRPC teaching chemistry to Year 11 students every single year?

In fact, repetition has the opposite effect to experience, in that it generates a narrow field of view while experience tends to produce a much wider perspective. Unlike experience which broadens familiarity with a range of possibilities, repetition generates an intense focus on how closely someone follows a rigid formula. It does not take much repetition or experience to recognise which one of these is by far the best suited to maximising HSC performance and use of the T5 strategy: the word has 10 letters in total, of which 5 are vowels and 5 are consonants, including an even number of 'e's, at least one 'i', and one each of 'n', 'p' and 'r', with 7 unique letters overall. Just kidding; it is the one where the number of letters between any repeated letter and its preceding or following instance, is the same for all repeated letters in the word. Get it? All right, fine, the real hint is: does going over all the past papers, and answering endless streams of practice questions, sound more like repetition or experience to you?

"Repetition" or "Experience"?	
repetition	experience
number of letters: 10	number of letters: 10
vowels: 5 (eeiio)	vowels: 5 (eeiee)
consonants: 5 (rpttn)	consonants: 5 (xprnc)
parity of 'e': even (2)	parity of 'e': even (4)
'i' count: 1 or more (2)	'i' count: 1 or more (1)
'n' count: 1	'n' count: 1
'p' count: 1	'p' count: 1
'r' count: 1	'r' count: 1
unique letters: 7 (reption)	unique letters: 7 (exprinc)
duplicate letter distance: 1 ("e _ e", "t _ t", "i _ i")	duplicate letter distance: 2 ("e _ _ e _ _ e _ _ e")

Let us assume that NRPC has teachers, that some of them are science teachers, and that some of these science teachers lay claim to extensive teaching “experience”. It quickly becomes clear what they mean by “experience”, when we examine their responses to naïve offerings from younger, fresher, smarter, more creative new teachers who did not know better than to contribute good ideas to a host of arrogant bullies who would not hesitate to steal their intellectual property the moment it hits the table. What we refer to is: when these “experienced” teachers encounter something new, what do they say?

These “experienced” teachers, when they encounter something new, say “We have never seen anything like this in all our suitably inflated quantity of time here!” and dismiss it out of hand. So much for a broad and complete range of experience, hey? All that time, and here are teachers who have never seen things that are similar to the ideas that a young, fresh, smart, creative new teacher could come up with, even without unreasonably exaggerated quantities of experience. Sounds like bull-sewage to us; what do you think, as the reader?

So... “experienced” teachers who have never seen things that are similar to fresh ideas! Are they in reality poorly experienced; or have they in fact seen similar things, in which case they are simply outright liars? If it is the former, then clearly they have no true experience, because not only do they stay in one place (which is fair), they do not bother to learn from others, and so their world view is so narrow that they do not even recognise that they have anything to learn from others. If it is the latter, then of course they will deny any intent to deceive, instead they will try to get out of it by arguing about what it means to be “like” or “similar”, and in doing so, prove that they really do intend to deceive.

To attack the bull-sewage from a different angle, we consider the absurdity of teachers at a school like NRPC complaining about having “never seen anything like this before”. Here is a selective school, where students should not only have lower-level intelligence that can be described as “the ability to learn and use knowledge to respond adaptively to stimuli”, but also higher-level intelligence that can be described as “the ability to solve problems that go beyond what is familiar, or are completely novel”. If this is NRPC, should the students be able to handle questions that they have not seen before, or should they only deal with those that were recalled from HSC past papers or syllabus examples? For teachers at the school to routinely reject ideas because they have “never seen anything like this before” is not only insulting and embarrassing, it directly reduces the educational opportunities of the students.

Here we see the incapacitating effect of false “experience” — rather than providing a broad foundation to build on, it sets boundaries that limit what people are comfortable with. The teachers at NRPC in the current Age of Arrogance cower in fear of unheard-of intellectual challenges, unheard-of only in this Age because they were usual fare back during the Age of Innovation, and to be fully expected. Daring to put students to the test with tasks that go beyond the statewide-syllabus-prescribed lowest-common-denominator level would be frowned upon these days; the policy seems far closer to “extension is not our business: excuses are”.

One of the most telling executions of this policy occurred in the Later Age of Arrogance, the early-to-mid-2010s. An independently-administered programme designated “FAST” commenced on NRPC facilities (due to historical connections), targeting the most intelligent students at the school for what even the most sympathetic observers considered a ridiculous pace of acceleration in science and mathematics. “Impossible!” they said, “Nobody can learn that FAST. You can’t teach

that FAST.". "Is that a challenge?" one of the independent administrators said, ignoring the insult. "Just watch me!"

The first Year 7 FAST classes commenced in 2011, progressing through 5 incredible years until 2016, when it was clear that the performance of the students (now in Year 12) was outstanding and unprecedented. FAST had been a resounding success — and was then promptly shut out from NRPC before it could have a chance to consolidate this performance. Internal NRPC sources cited a departure from the vision of the school, which was nominally to maintain historical continuity through prominently flaunted vestiges of the Age of Innovation (see 6.1.2.3 Inappropriate Optimism). As always, however, truth is irony.

With statistics showing that the success of FAST was simply a reflection of the successes of that earlier Age, the actual reason for rejecting FAST became evident. FAST was indeed departing from the vision of the school, which in reality was to show off to the world the successes of the current students, and by association, their current executive. The problem was that genuine displays of historical progress during the Age of Innovation would outshine current achievements, and thereby again embarrass the current stakeholders. The solution? Get rid of all traces of the high achievers of previous Ages, because NRPC cannot surpass them by making itself better, only by tearing them down.

Proposed Extension	Any question in a test that requires higher-order intelligence, reliable problem-solving skill, or just competence to answer correctly.
NRPC Excuse	"In all our years here we have never seen a question like this in an HSC test! It must be deleted!"
Detailed Explanation	I have never seen this type of question before because I ignore or repress my memory of any questions that I am unable to answer correctly. I cannot bear to imagine that students might be able to answer this question correctly, when I cannot. We only use T5, and our students are limited by the level of the HSC, so if it is never in the final test, we should not have anything to do with it.

Proposed Extension	Instead of throwing Year 8 students in the deep end by making them do SRPs without adequate guidance, we could make them conduct a Student Research Review Project on previous Year 9 SRPs, and then do SRPs of their own in Year 9.
NRPC Excuse	"In all our years here we have never seen an idea like this! We have only ever done it the other way since we started so we will keep doing it that way!"
Detailed Explanation	I have never seen an idea like this before because I do not understand that scientific research often involves literature review, probably because I did not have the capacity to undertake any higher degree by research. I am too lazy, incompetent, or unimaginative (usually all of these) to think about whether this idea might work. In fact, I feel threatened by having students review the work of others, because it might reveal indiscretions like fabricated results and plagiarism, which I am also guilty of.

Proposed Extension	A science fair or similar event where students doing a SRP might present their work, encouraging them to engage with and participate in the greater community, and giving context to their education.
NRPC Excuse	“In all our years here we have never seen an idea like this! There is no way you can make this work! We laugh at your naivety!”
Detailed Explanation	I have never seen an idea like this before because I pay no attention to how education is conducted outside the school. I am too lazy, incompetent, or unimaginative (usually all of these) to think about whether it might work. I certainly can’t be bothered helping to implement it, so fly off! Never mind the fact that science fairs are by no means particularly novel, and plenty of other schools already run them.

Proposed Extension	The school house system, so far relevant only to physical sports, could be updated to include the scoring of points for merit in other endeavours, such as academic performance or community participation.
NRPC Excuse	“In all our years here we have never seen an idea like this! We will stop you from implementing it!”
Detailed Explanation	I have never seen an idea like this before because I pay so little attention to how education is conducted outside the school that I do not realise that another local school we regularly compete with in sports and debating already does exactly this kind of thing. I am too lazy, incompetent, or unimaginative (usually all of these) to think about whether it might work. I certainly can’t be bothered helping to implement it, so fly off!

5.2 Performance

We now take a look at the high achievers of previous Ages, and how things have gone since then. As discussed in section 4.1.2, we use Australian Science Olympiad training school and team representation as data for our analysis. Specifically, we consider:

- (1) how many of the approximately 60 students who qualify for summer training each year are NRPC students, and
- (2) how many of the 13 students who represent Australia in the International Science Olympiads each year are NRPC students.

Data for 2016 were unavailable for publication, but we will not go as far as to suggest that they were suppressed by NRPC because they showed too clearly the success of the FAST intervention. In any case, when the 2016 results are released, they should be seen as an anomaly and not part of the usual pattern for NRPC — instead they most likely represent side effects from FAST and then the infiltration of the school by ANSWER agents in 2015.

5.2.1 Data

NRPC Science Olympiad performance.

Year	2015	2014	2013	2012	2011
NRPC students on teams	2	0	0	2	1
NRPC students in summer training	7	7	9	9	9

Year	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
NRPC students on teams	3	1	4	2	4	4	2	3	4	3
NRPC students in summer training	11	12	14			14				5

Year	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991
NRPC students on teams	2	0	1	0	0	0	0	2	1	1
NRPC students in summer training	4			1	2	8	2	3	2	4

Year	1990	1989	1988
NRPC students on teams	1	0	2
NRPC students in summer training	2	1	2

{→ "<https://www.asi.edu.au/alumni/honor-roll/>"; retrieved 2016-05-21}

Chart: NRPC Science Olympiad performance.

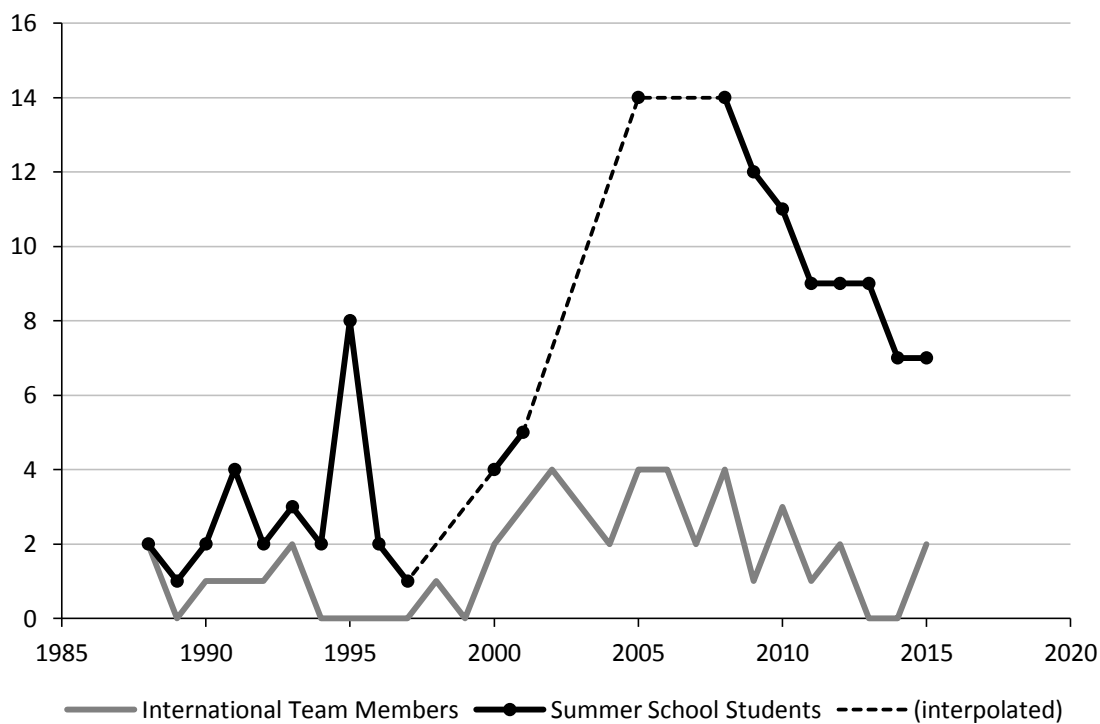
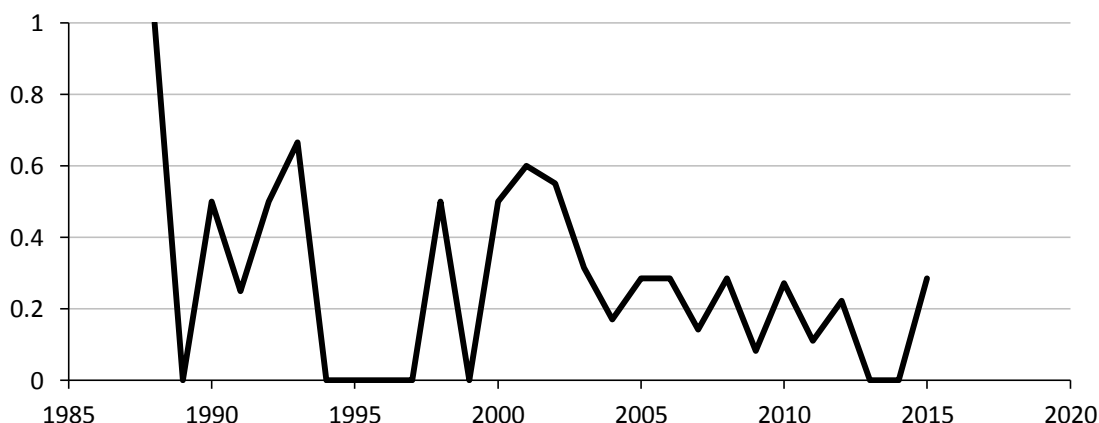


Chart: NRPC Science Olympiad conversion rate.

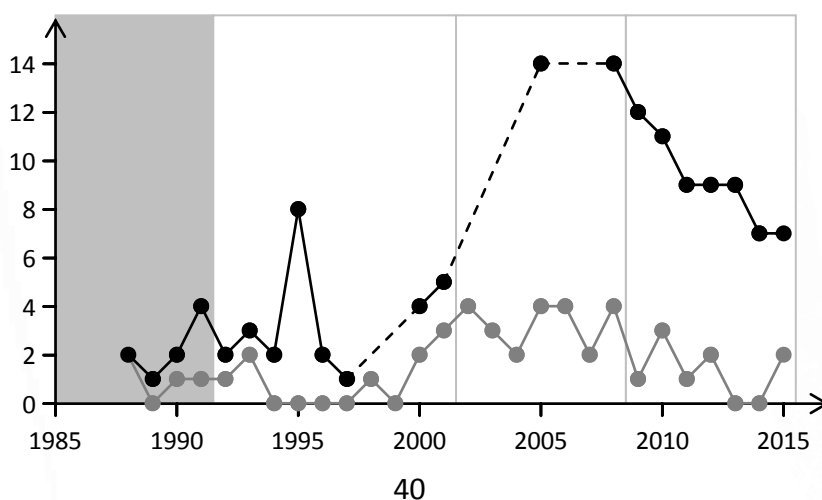


5.2.2 Interpretation

As previously recognised, external testing solves many of the problems of internal testing, so our data here are relatively more objective and unbiased. Please review them with interest! On the other hand, our interpretation of the data will certainly be biased to favour the aims of ANSWER: to ensure that students receive the best education possible. In particular, we are most concerned with providing gifted and talented high school students in NSW the best education possible. If the data point to good and bad teaching, you can bet that we will identify where the data are pointing.

5.2.2.1 The Distant Past: up to 1991

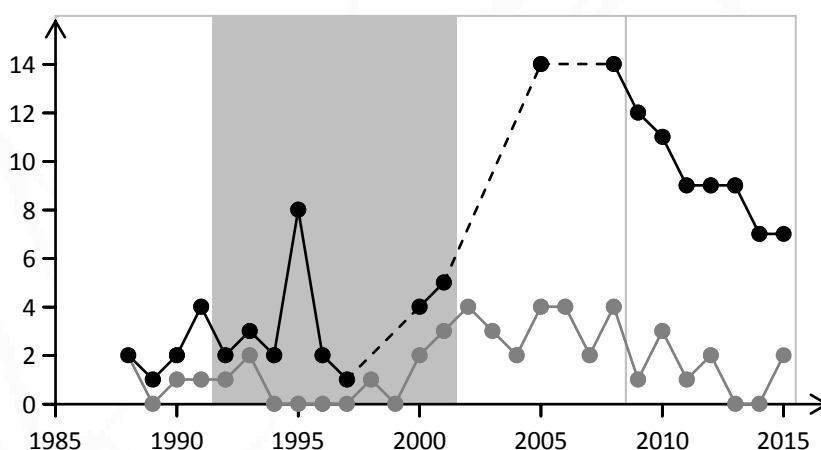
Little is known about NRPC teaching practices prior to 1992. The school was already academically selective by that point, so the low but consistent level of Olympiad participation would have been fairly unsurprising. Interestingly, although the study of agriculture significantly overlaps with the study of biology, participation in the Biology Olympiad was not available to Australian students until 1992 and so earlier results would have been indicative of education purely under the banner of the science department. Regardless, data from this period are of passing interest only.



5.2.2.2 *The Age of Innovation: 1992 to 2001*

This period coincides with the commencement of several fresh staff, especially in science and mathematics at NRPC. “Coincidence” is perhaps too dismissive a term, however: it is quite well-documented (albeit in the school Yearbooks, which are not necessarily the most objective sources) that many of these staff actively undertook to improve the teaching of science and mathematics at this school. The particular details were taken with retiring and progressing teachers as they left the school, but ANSWER has been fortunate to have been able to interview some of them. Their ideas and opinions may be included in future ANSWER publications.

Initial gains in mathematics (6.2.1) were not matched by performance in science. There were claims of limited resourcing, possibly explaining the poor conversion rate from students attending training to representing Australia internationally. If other schools were able to furnish better support for their students over this period (the Yearbook records do indicate that preparatory classes were available through major universities, and that these were less accessible to NRPC students), it does seem plausible that the other schools achieved better results in the early 1990s because of this.



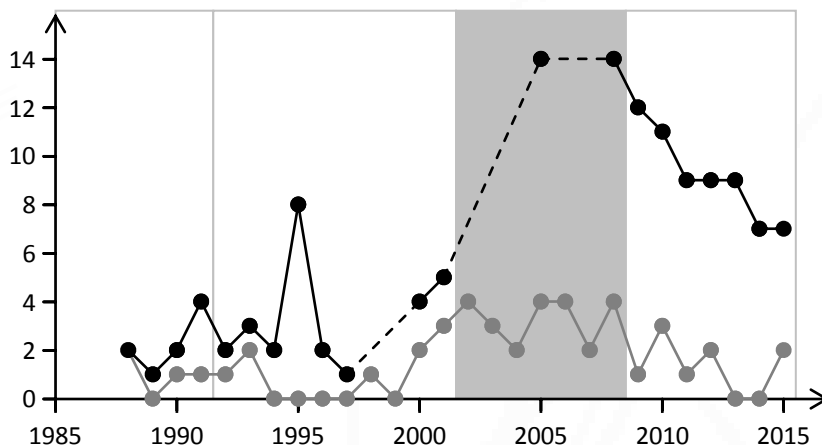
The late 1990s saw renewed vigour in implementing higher-level teaching programmes targeted at more capable students. Overseen by internal NRPC staff, though mostly taught by students or by outside providers, sessions were frequently attended by younger students (in younger grades), consequentially generating lag times of 1 to 2 years. Certainly the effects of these courses was seen by 2000 and 2001, a clear reversal of fortunes just a few years prior. Everyone knew we were onto something here, and as the teaching programmes continued, it set the stage for progression into the NRPC Age of Complacency.

5.2.2.3 *The Age of Complacency: 2002 to 2008*

In 2001 the initiators of what has been termed the “Chain of Success” graduated, leaving higher-level teaching in the hands of a new generation of their trainees. This seemed adequate, indeed, more than enough, as the internal NRPC Olympiad Training Programme burgeoned to engage close to 200 students each year. Perhaps it was all too much, as conversion rates fell sharply, but international representation remained stable.

The ANSWER takes the position that we should not read too much into the fall in conversion rates, because the most sensible explanation for this is that the effect of training was merely to increase

medium-level student performance. Every student who was good enough to be selected for an international team would already have been selected anyway, so the broader training programme simply increased the number of students reaching the next level under that. We should see this overall as a good thing: it would be even better if more students were able to reach the top levels; but as things are the data show that with the right educational opportunities, the intelligent students at schools like NRPC can do very well indeed.



Perhaps it was all too much to hope, that substantive improvements in the training programmes could lead to demonstrable improvements at the top levels of scientific performance. Accusations and real reports of throttling emerged only later during the Age of Arrogance: some suggested that like certain universities restricting entry to undergraduate medical courses, ASI may have allowed only a limited number of students from each school through to each level. In actual fact throttling began much earlier, with various tactics to minimise student crossover from one science to another. These all came to a head in 2015 when it was suddenly clear that students were not even given a choice of which summer training stream to attend, but were simply locked into the one they had appeared to qualify most highly for. However, ASI practices are not the topic of our current review. We are looking at NRPC performance, and as far as Olympiads were concerned, by the late 2000s it seems that NRPC performance was ready to plummet of its own accord, with no need for any help from throttling effects at all.

5.2.2.4 The Age of Arrogance: 2009 to 2016

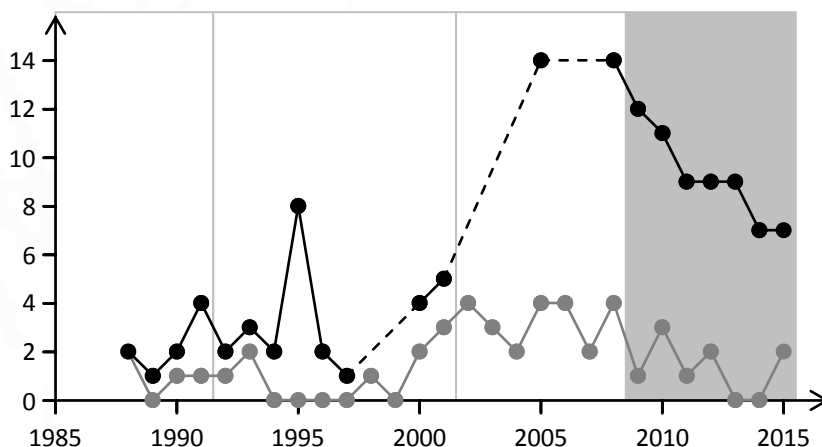
This is where things become quite interesting, where the meaning of “interesting” converges upon “concerning”. Summer training data were difficult to source over the earlier Age of Complacency, perhaps because the school use of computer and networking technologies was still primitive. They would also have been considered not worth mentioning frequently, being overshadowed by actual international team numbers, while many would have assumed that they would continue to rise for some time and so not yet be at a level of particular note. In hindsight, we think it already did constitute a remarkable achievement, as the known peak of 14 students is almost one quarter of the 60 or so students who attend the summer training schools each year. It turns out this remarkable achievement was also a most reversible one, as we shall now see.

Times were changing at NRPC, now 17 years on from the beginning of the Age of Innovation. Human teachers, like any other humans, do grow old, and inevitably the staff driving the earlier successes retired. They had come together as a team dedicated to the advancement of gifted and talented education 17 years ago, with a little fanfare and a quiet sense that they were about to

achieve greatness. After all that time, they went their separate ways, quietly, and just as quietly a new complement of teachers replaced them. “Complement” is most appropriate here, for while the teachers from the Age of Innovation were able to build for greatness, many of the newer staff were something on the other side of the scale.

For unknown reasons, it appears that through the Age of Complacency, some teachers had become resentful that NRPC had become a school disproportionately strong in science and mathematics. The developments in science and mathematics had not come at any cost to other areas, but perhaps did appear to outshine success in other areas, and this may well have incited some dissatisfaction among other staff. Allegedly this sentiment was revealed in a most undignified manner when a non-science member of senior executive responded to an observation that there was little representation of science or mathematics among the executive, saying “well, it’s our turn”. We as the ANSWER agree with this executive member: it certainly looks as if the selection of school executive is not merit-based, but instead essentially a turn-based rotation of “teachers” who have their own agenda to advance. This is as it should be, and reflects exactly the nature of the Age of Arrogance.

Back to what we are actually here for, we examine in detail the performance of NRPC in the Science Olympiads from 2009 to present. There are several interesting features of the shifts in performance, starting with a precipitous decline from 2008. This appears as if it could have started 2 years previously (2006), when the Principal of the Ages of Innovation and Complacency retired, but just as the higher-level teaching programmes of that time had consequential lag times of 1 to 2 years, performance was probably preserved until a most obvious change in trends at the later date.



What a precipitous decline it was, too, with training school participation down a full 50% — from 14 students in 2008 to 7 students in 2014. This dramatic crash would have spoken volumes about what was going on at NRPC, except nobody at the school said anything at all. In fairness, who would dare to announce their own failure? Instead, everyone at NRPC simply carried on, pretending that the current numbers were the big news, and quietly hiding the longitudinal statistics away. To continue to claim success despite obviously falling performance is nothing short of arrogance, and a pattern of behaviour fully consistent with the times.

Perhaps they were too short-sighted to consider that by publishing suggestive numbers each year, interested observers could still track down each datum and collate them all into a meaningful sequence. More likely, though, they probably figured that by the time anyone picked up on the damage they were doing, they would have already sucked all the benefit they could from the

school, and it would be time to move on. Indeed, the First Principal of the Age of Arrogance handed a smouldering NRPC over to the Second Principal of the Age of Arrogance in 2012, having spent just 5 years razing the pillars of scientific success and taking off with the spoils. Note that 5 years is just enough for a generation of students to flow through the school, ensuring that no remaining students would have a reliable memory of the true successes that preceded them.

While training school numbers plummeted, team representation correspondingly fell from 4 students in 2008 to 0 students in 2013, ending the 13-year Chain of Success that had defined NRPC science in the 2000s. If we at the ANSWER have any regrets, it is not picking up on this any earlier, with perhaps some hope of arresting the decline. Looking back, and forward, though, perhaps it was better to allow those at the school to show their true colours, but either way, the results are as we have them. Of 13 students competing internationally in the Science Olympiads each year, 4 students constituted an impressive almost one-third; as the Age of Arrogance continued, NRPC reached 0 team members, an impressive drop to absolutely nothing.

What phenomena could possibly explain this downward trend? We have considered a few most prominent possibilities (there are likely other explanations, but here we will explore the few most obvious ones).

- (1) Olympiad teaching exceeded the ability of staff teachers to regulate (or teach).
- (2) A “Chain of Failure” was established, with each successive cohort of students failing to reach the standard of their mentors.
- (3) NRPC, contrary to claimed directions, suffered an increasing focus on HSC results to the exclusion of everything else.

5.2.2.4.1 Regulatory Failure

At the peak of complacency, the sheer volume of Olympiad preparatory training in time alone amounted to one third of a full-time high school teaching load. A recent (2014) analysis by ANSWER estimated that learning at Australian Science Olympiad summer training schools occurred at a rate approximately 180 times faster than at high school, so a suitable estimate for the intermediate rate of preparatory training may be 13.5 times faster than high school. Blindly going ahead with the assumption that the quantity of learning directly correlates with the quantity of work that educators have to do, we therefore estimate that Olympiad preparatory training at its peak required the equivalent of up to 4.5 full-time teachers.

For various reasons we expect this to be an overestimate, but the important understanding is that the provision of Olympiad preparatory training does constitute a significant amount of work for whoever provides it. Fortunately for NRPC staff, it is predominantly students who conduct the actual tutorials, as it should be: these are Olympiad-level students and in doing so, they enhance their understanding of their subject while obtaining valuable teaching experience. In some years, up to 10 or so (some classes were shared) returning Olympiad summer school students taught in preparatory classes after school at NRPC.

The ANSWER was able to review and archive large quantities of the printed materials that some of these student instructors (and NRPC teachers) used. Unfortunately, we concluded that the vast majority of such resources were of very limited value, and often consisted entirely of poached or plagiarised material without any acknowledgement. Few documents were significantly revised from year to year, with most of the changes being an increment to the edition or year number,

and a fresh claim to authorship. Edition and year numbering adjustments did not even propagate through the entirety of a few of the documents (for example, the number on the title page did not match the number in the header or footer).

Classroom practice proved much more difficult to monitor, as we might expect. The presence of a non-student observer in the classroom significantly changes the dynamic, making it impossible to obtain an unbiased appraisal. ANSWER also lacked the resources to audit large numbers of classes, so our findings are based on a very limited number of observations. Despite this, it would seem that what little evaluation we were able to conduct was at least as much as NRPC teachers provided.

NRPC staff involvement appeared to be confined almost purely to administrative matters, with little in the way of guidance or supervision of day to day teaching. Now these may be the best students, but they are not trained teachers (although that counts for little as well judging by some of the actual teachers at NRPC). Even the best ANSWER agents required 6 years of practice before becoming comfortable with classroom teaching. Were the student instructors able to teach their own students what was required to do well in the Olympiads? Evidently not, in hindsight, given the progressive decline in this Age of Arrogance.

The lack of guidance or supervision, concerning as it sounds, may have been merely a symptom of something deeper and far more problematic: that the inability to provide it was not grounded in a lack of time, nor even a lack of interest, but a lack of knowledge (including skill). We contend that none of the current NRPC science teachers was ever an Olympiad team member, or even an Olympiad summer school trainee. Perhaps some of them are too old to have competed (the first Australian involvement in the Science Olympiads was in 1987), but would those older teachers have been Olympiad material? If asked, how many of the teachers would dare to take on a challenge to try an Olympiad NQE, and how many of them would reach the qualifying level? We are talking about material that is, for the most part, university undergraduate level science. Is it too much to expect that the teachers of the best science students in the country, might have some knowledge of science that goes beyond the HSC level?

It is very difficult to properly monitor, supervise, regulate or guide the conduct of a tutorial, if the person charged with doing so is unable to understand the content. NRPC “teachers” may lack the time or interest to attempt to hold their own Olympiad preparatory classes, but their failure to do so probably more often represents a lack of competence. This not only directly disadvantages those best science students in the country who attend this school, but also prevents other leading science students from providing the best teaching to pass on what knowledge they do have.

5.2.2.4.2 The Chain of Failure

The consequence of regulatory failure is degradation of teaching: the accumulation of errors as they are passed successively from cohort to cohort. Bringing former Olympiad students back to teach younger grades was an innovative strategy that generated the earlier Chain of Success, but in the Age of Arrogance it was to generate a Chain of Failure. Few formally qualified teachers were willing or able to engage with student instructors to ensure that tutorials had appropriate content that was taught effectively. With inadequate supervision, what else could these student instructors do but propagate the same mistakes that they made, and indeed were shown how to make, in their own time?

As the Olympiad preparation industry at NRPC grew beyond the will of staff to fully support it (the topic of the previous section 5.2.2.4.1), another problem arose: the deficit of suitably capable returning Olympiad students. Some returning Olympiad students would simply be selfish and unhelpful, choosing instead to focus on their HSC or further studies (the topic of the next section 5.2.2.4.3) — a false economy in the sense that if they really were good enough then they would have needed no additional effort to do well in the HSC, and the time would have been far better spent obtaining teaching experience and filling out their résumés. Others were simply not sufficiently capable without formal teaching assistance, to provide good teaching for the next generation of Olympiad hopefuls. It does not appear as if anybody cared; whoever was nominally responsible for the Olympiad training programme simply went ahead and filled the tutorial roster with any available student instructors, without the backing of good teaching skills support. It probably was not purely the fault of the organiser — which official members of staff would be able to provide that kind of support, anyway?

As a consequence, many students who did attend the Olympiad Summer School, but failed to make the international team, were to become student instructors. They were capable enough to teach something, and they did exactly that: they taught younger grades of NRPC students what was needed to attend the Olympiad Summer School, and fail to make the international team. It was as inevitable as it was ludicrous, but it is exactly the picture that should come to mind when we encounter the words “Chain of Failure”. Here we comment briefly on three types of mistakes that were passed along the chain: carelessness, factual inaccuracies, and strategic errors.

The specific consequence of carelessness that we are interested in here is rather more profound than simple bad habits being propagated from student to student. Instead, we consider a subtler, second-order effect that is difficult to recover from. Bad habits can be reversed or redirected; the development of deep-seated misunderstandings is an enduring problem. What we are concerned with is the transfer of implicit or subconscious patterns that are incorrect, thereby weakening the foundations of learning that is to be built upon them. Students do not learn only the intended concept that an instructor tries to convey: if we teach geography but cannot spell words correctly, our students will most likely learn to spell geography-related words incorrectly. That is to say, when we learn immersively, we pick up on subtle nuances and environmental cues that need not be explicitly highlighted. Learning the correct nuances and cues could be the difference between familiarity (or “intuition” or “fluency”), or failure.

To use just one illustrative example of what we are talking about, during an Olympiad preparatory training session, the instructor was observed to ask “How many molecules of calcium carbonate are there?”. Although many less-informed people may consider this an innocuous flexible use of language, and even some slightly-more-informed people may consider it acceptable when used to teach more-“junior” science students, the truth is that it is plainly and simply incorrect. Calcium carbonate is not a molecular substance, and giving students the impression that it might be (whether accidentally, carelessly or intentionally) is wrong. Students who have heard about molecules of calcium carbonate will be more familiar with this incorrect idea, than students who have not heard the same incorrect suggestions. If we are educating academically gifted students, we probably do not want them to be too familiar with getting things wrong.

Factual inaccuracies are far simpler to explain here: we refer simply to direct incorrect knowledge. As opposed to a careless implication that calcium carbonate is molecular, on the way to teaching students about stoichiometry, the kind of situation we mean by “factual inaccuracies” is the

instructor explicitly giving students information that is incorrect. This kind of thing includes the case where a teacher asserted (in the face of having an expert in the field describe the contrary evidence) that human plasma contained no lipid phase and would not separate into oily and water components on centrifugation. This is the kind of teacher that goes on to argue that it is unfair to consider incorrect answers incorrect, because it is not the fault of the students if teachers taught them the wrong thing (see 5.1.2 Bull-Sewage and Bullying). Right... it is clearly much fairer to give them the same results as students who bothered to learn properly and get correct answers. Which kind of leads to the third mistake we look briefly at: strategic errors.

By “strategy” we refer to the broad, overall plans and goals of education, goals which for high school students relates to what they hope to achieve by the time they leave school. For NRPC students, this would comprise working as hard as possible on rote learning to do well in the HSC, and doing as well as possible in the HSC by working hard on rote learning. Educational strategy for individuals would usually form part of a life strategy, which for NRPC students (as we have seen time and again) is invariably “do whatever it takes to get into a university course in medicine or law”.

We consider “do whatever it takes to get into a university course in medicine or law” to be a life-strategic error. Student instructors almost always prioritise overstudying for HSC assessment tasks over preparing for and providing Olympiad preparatory training, showing their willingness to sacrifice the good they provide to others, for their own ends. Perhaps they could simply be more effective with their time management, but that is not the point here. What is more important (as it amplifies the effect of error) is that these student instructors model for their own students a pattern of values that embeds HSC obsession in the NRPC consciousness. Unfortunately for the younger students, this means that at this school, the use of current HSC students to provide most of the Olympiad preparatory training is also a strategic error.

More generally, the characteristic arrogance of this Age, combined with seemingly innate laziness, has given rise to a steady stream of ambitious Olympiad trainees, with astoundingly unrealistic self-images and aspirations. Interviews with various students revealed a common perception that once they had attended a session nominally about some topic, and seen a few words or pictures relating to that topic, they were now experts in that topic, and had an Olympiad level of competency in that topic. We point the finger at staff and student instructors alike, who have failed to impress on new students the required work ethic to do well in more difficult endeavours like the Science Olympiads. These require not only a sustained effort to learn and understand the content, but a willingness to take on challenges beyond what is familiar. Which, really, brings us back again to concerns about the exclusive, excessive focus on maximising HSC results through pure rote learning. This is a strategic error. This is NRPC.

5.2.2.4.3 Narrow-Minded Failure

In prior Ages, the community used to see NRPC students as incredibly intelligent, and who often simply happened to do well in the HSC as a result of this intelligence. In a dramatic turnaround, in the current Age, the community have begun to correctly see NRPC students as entirely focused on doing well in the HSC, and only occasionally happening to be incredibly intelligent not because of, but despite this. What changed?

What changed is very simple: in the past, among staff and students at the school was a general understanding that they would act “in pursuit of excellence”. If this turned out to include superior HSC results, then so be it; it was merely one part of a broader picture of success. Of course, HSC performance was the most regular and the most familiar part of this portrait of excellence — almost everyone who grows up in Australia will attend high school at some stage. Unavoidably then, attendance at NRPC would come to be seen as synonymous with high achievement in the HSC. As school leadership weakened, to preserve the image of NRPC as a leading school, naturally these “leaders” would seek to focus community attention on the one thing that they still had to show: top HSC results. Never mind that all the other advances of the past two decades had quickly eroded away, they were no longer relevant. NRPC now defines itself as a school that focuses entirely on its top HSC results, to the exclusion of everything else.

In their fear that this image of the school would become entrenched community perception, the school “leaders” attempted to conceal it with long words and claims to the contrary. School statements are littered with garbage like “creative, holistic learning”, “resilience, resourcefulness, critical and creative thinking, personal and social capability”, and “holistic men and women of wisdom”. They are packed full of lies about success in extracurricular activities, most likely relying on the difficulty involved in correlating the information with external sources. Direct observation of practice at the school tells a different story, the truth: a throng of blinkered students, discussing their latest HSC-oriented test marks, or engaging in uninformed discourse about their world which ends less than 3 metres outside the school gate. It is the same culture that carried us through the Age of Complacency, the same culture that the frog of our physics question hatched into.

Recent interviews with past NRPC students, including several from the famed year of the 99.55 median {→}, were quite revealing. Few of these students had returned to the school in recent years, and perhaps to the benefit of their wellbeing (imagine how devastated they would be to see the pitiful state of the school in recent times). Most of them expressed concerned surprise at the changes (and some failures to change) that their attention was drawn to, as well as the allegations that they came from an era where the students were blinkered by their single-minded focus on the HSC. Indeed, they remembered their high school years as a time of extracurricular abundance, an image supported by what unfortunately little independent evidence there is of that period.

{→ “<http://www.smh.com.au/news/national/only-race-that-matters-is-the-rush-to-the-top/2005/11/25/1132703380790.html>”; retrieved 2016-06-23}

That the school achieves poorer results than at the apogee of the Age of Complacency, at a time when the focus is ever more on how well the school is doing in the HSC, should tell us a great deal. That apogee was 12 years ago in 2004, long before the current Age of Arrogance — and for the students of the time, achievement was just another part of their days. There was no big fuss about being the best (it was simply understood), there was no big fuss about wellbeing (there were problems back in the day just as there are now, but perhaps fewer back then and in a context where they were simply recognised and worked with rather than blown out of proportion). NRPC certainly has fallen very far, and there may be further to go.

5.2.2.5 The Future: 2017 and beyond

As previously mentioned, data for 2016 were unavailable for publication, but would most likely represent side effects from FAST and then the infiltration of the school by ANSWER agents in



2015. We can see a little of this by inspecting the final curiosity of science performance in the Age of Arrogance — a small turn upwards right at the end of our data series: 2 international team members in 2015. Some would claim this is the start of another reversal of fortunes; some claimed it was a side effect of ANSWER infiltration. We would claim that it is no surprise, given comparative data from “the distant past”, where it certainly fits well within the expected level of noise. (The relevant students do seem to be familiar with one or more ANSWER agents though...)

A dramatic decline of mathematics performance at NRPC (see 6.2.1) became evident late in the Age of Arrogance, a phenomenon we can almost certainly thank the Second Principal of the Age of Arrogance and the mathematics “leadership” for. This occurred somewhat later than and distinct from the decline of science performance, and will be dealt with in more detail later. (Of course, the subject areas in reality are closely linked, even inseparable — but in the HSC, they are two very different things.)

With its extracurricular academic performance at the lowest point in 20 years, what is next for NRPC? Surely this is “rock bottom”, and the only way to go is up? In some ways, this is true: after two years with zero (0) team members at the International Science Olympiads, the occurrence of any at all must be an improvement. However, the Olympiad preparatory training programmes have continued, and the number of qualifying Science Olympiad Summer School students has only fallen to seven (7), not zero (0). In mathematics, performance may have dropped below that during the Age of Innovation, but it has not reached “pre-innovation” levels... yet. There are still plenty of opportunities to plummet, and a very real push to do so.

Who among the school staff, the students, or their caregivers, would be willing to stand up for the education of students selected as the most intellectually gifted in the state? When the school executive systematically implement strategy after strategy to weaken the intellectual capabilities of science teachers and students, who will be there to shield the science department from this onslaught? While NRPC accomplishment in STEM collapses, why do we see all the stakeholders simply sitting around singing self-congratulatory praise?

Example question. The latest NRPC Musical is entitled “The Emperor’s New Clothes: NRPC in the Age of Arrogance”. While we could make a weak pun about some kind of empty new cloze test, the actual biology question is: assuming the emperor is a live human organism, what homeostatic mechanisms would act in the body of the emperor if the old clothes of the emperor were replaced by the purported new ones? We might make the cloze test anyway.

The Emperor’s New Clothes (scale: 1:40)

Once upon a time (2009 to 2016), at a school known as _____, the _____ was upon us. Conceit and corruption had set in among the senior executive, who no longer cared about student wellbeing in the long term (predicated on good academic performance in the _____ or the _____), instead preferring instant gratification in the form of pretentious ideas of “wellbeing” related to not having to be challenged in the everyday grind. Unscrupulous education peddlers, seeing a great opportunity, offered an endless variety of costly proposals on procedures to make the school look better, but which entailed simply “going through the motions”. Claims were made that people who could not tell that these procedures would make the school better than it had ever been, were “unfit for their office” and “embarrassingly stupid”. School staff went right ahead and implemented the recommendations, one by one, trying to avoid being seen as “_____” or “_____”. Conveniently, they were even able to use the tendency of NRPC students to bow to peer pressure, to their advantage. One day, some students, too intelligent for the new and “improved” NRPC, finally grew some abdominal organs (commonly referred to as “_____”) and stood up with statistical evidence that they had seen, to put it out there that the garbage that was going on at _____ was not helping at all. Gradually some of the other students, caregivers and teachers got up to speed with this idea, but the executive and their sycophants carried right on, because “who cares if we waste the resources of the school and wreck it, at least we still look good with our _____ exposed”

NRPC’s New Improvements (in the Age of Arrogance)

We at the ANSWER were able to develop some ideas on just what such procedures might look like. Here are our Recommendations for the Senior Executive at Schools Like NRPC.

- Heavily censor student publications to ensure only articles that appear “creative” and (or) paint the school (especially its senior staff) in a favourable light are retained. Take active steps to suppress and overreact to content that may generate even the slightest controversy, like opinion articles on voluntary recruitment to the ANZAC.
- Attempt to conceal the widespread knowledge that the school is an HSC and ATAR factory, by demanding that prefects not write and perform the customary annual satirical song, requiring them to avoid mentioning marks and rankings and so forth, in the name of “wellbeing” (which would be a patent lie, as it is the oppression of students generates more distress {→}).
- Take a prominent cameo role in the school musical, by “surprise” announcement, to give the appearance of engagement with cultural activity of the school. In the same musical, we note the foolish push for the “use of technology” in such productions, resulting in an impressively jarring projection of awkward and mostly low quality backgrounds onto a screen in the middle of the stage (most probably a substitute for spending time and money producing actual physical background theatrical properties).
- Redirect the spending of time and money on things like theatrical properties, to fund more studying for the HSC and to accelerate building of an unnecessary school gym (which could then bear the name of one of the executives).

- Deny intentionally alienating previous students of earlier ages, then accuse them of not engaging with debased offers of compromise that were manufactured to generate the impression of legitimacy.
 - Rather than simply vetting submissions for school jersey tags to appropriately prevent offensive language and the inclusion of confidential personal details, cite “safety issues” to block all personalisation and enforce the universal application of the school identifier, thereby ensuring that uniformity drives conformity {→}.
 - Stage an evaluation of a major department at the school, to appear to be doing something useful while instead taking the opportunity to reorganise and manipulate political supports within that department, and without.
- {→ “<http://www.hillsnews.com.au/story/1198063/north-rocks-poaching-ranked-top-school-in-state/>”; retrieved 2016-07-02}
 {→ “<http://www.smh.com.au/nsw/live-coverage-nsw-atar-results-released-20121219-2bo0f.html>”; retrieved 2016-07-02}
 {→ “<http://community.boredofstudies.org/717/fashion-beauty/337730/north-rocks-2015-jerseys.html#post6962259>”; retrieved 2016-07-04}

In short, successful senior executive staff at schools like NRPC should blame students for any incident that detracts from the good image of the school, despite the fact that the most damaging activity in this regard — implementation of stupid policies designed to reduce the intellect of the students so that they have no hope of outshining the staff — is perpetrated by the executive staff themselves.

Successful use of technology in artistic work at NRPC.



This is the only adequately exposed image available. The nature of the projected scenery is relatively favourable. Therefore, this is as good as it gets; other scenes were far, far worse. Compare and contrast this with former musical productions, such as the one shown below.



5.3 Reanalysis of Internal Evaluation Findings

5.3.1 Background

During Term 1 2016, an evaluation of the Science Department was staged at NRPC, creating the impression of commitment to continuous school improvement. The nominal purpose of the evaluation was to “explore aspects of practice” within the Science Department, but of course there was no mention of any actual intent to improve practice as such. In fact, we are told that staff were advised that the evaluation would be “formative” in the sense that recommendations would not be forced upon the department. Subsequently, these assurances were shown to be false, and staff were taken to task over the findings following the completion of the evaluation. Some parties with close ties to the department, but who request to remain anonymous, have suggested that the real purpose was the persecution and purging of the “Old Guard”: elements who remained loyal to the ideal of providing the best possible education to gifted and talented students at the school. We also note that the evaluation team included various executive staff from this and other schools, but glaringly, no representation of key stakeholders such as students or their caregivers (presumptively identified as “parents” in the internal review).

This evaluation team presented their findings as a slide show to an audience of caregivers and students, as well as on paper. It is not clear why they structured their document in this way, with points jumbled under different headings they do not really fit under, and without a clear logical progression from one to the next. Was it deliberate obfuscation? Incompetence? Even if this were a rushed job the grammar and spelling should not be as terrible as they are. It is all very unprofessional and makes it difficult for anyone with a selective school level of intellect to take the review seriously. It does not even take a reanalysis of their findings to cast doubt on the credibility of the internal evaluation team. Were the consequences not so grave, it would be amusing to watch them take the ludicrous position that “the Science Department needs to get its act together” by advancing a product that is absolute trash.

5.3.2 Actual Findings (Reanalysis)

For claimed findings, please see the original review document. Readers are invited to read this section if they enjoy satire, but are also welcome to skip ahead to the next section if they find it all too much.

5.3.2.1 Staff

Some teachers were committed to improvement in their work practices and workplace environment. All teachers claimed to be dedicated to providing a quality education for the students of NRPC; for at least a few (3 or more) teachers this was genuine. All staff also reported that they were willing to work together to improve the culture and environment of the department; and again for at least a few (3 or more) of them, their reports were genuine.

There were feelings of inequity of workload, largely put forward by those who in reality did the least work. As one example, too many teachers were involved in the creation and marking of

assessment tasks, largely because less capable staff felt threatened by more capable staff potentially introducing components that would be more challenging to mark. This contributed to delays, an excess of meetings, frustration, personal attacks, and low morale.

Similarly, some staff reported feeling unappreciated — a situation that is entirely in line with their performance. They should meet higher work standards before they can legitimately be “thanked, praised, valued by each other” as they demanded.

There was some concern that language and tone were not always respectful, but it should be noted that such disrespectful communication was almost always from the same small group of sources. Some staff, mostly the sources of disrespectful communication, also commented that at times working in the staffroom was difficult due to the noise level and that they had therefore sought other places to work — instead of politely requesting for quiet, or using technology to reduce the noise they could hear.

A hierarchy of experience was apparent, and the opinions of staff seen to be less-experienced were treated dismissively, even though we know that experience is far more important than intelligence. For example, this is the reason that teachers at this school are always superior to the students. Staff attitudes, in particular those of the more-experienced teachers, seemed to reflect this undertone (or is it overtone?) of superiority.

“Out! Out! Get out! You have to give way to others!” — Experienced NRPC Science Teacher, forcing her way out of the staffroom into a stream of students who had been instructed by another teacher to enter the classroom, after having lined up outside.

The role of “Coordinator” (for assessment tasks for each year level) was unclear, largely because of a few staff who behaved obstructively, presumably solely to cause trouble. For example, some teachers demanded that they only ever be asked and never told to do things by their colleagues, as this would give them an insubordinate opportunity to refuse as a way to initiate conflict, and then follow up by raising objections to being “told”.

For some reason, the internal evaluation document included further comments about the “Coordinator” role under the title “Policy”. Rather than assume the incompetence of its authors, we instead suggest that they may have intentionally arranged this to interrupt the reading flow and confuse the audience, perhaps to make the audience more impressionable.

One comment related to how “Coordinators” implemented their roles differently and inconsistently across the department. Similarly, all individual humans are individuals, and even “Leaders” take on their “Leadership” roles differently and inconsistently across the 7 000 000 000 people they may have to “Lead”, in different groups and at different times. Indeed, a failure to understand this should be a greater cause for concern, especially given that the evaluation team comprised various executive staff presumably usually with some kind of leadership role.

The remaining comment regarding “Coordinators” was that the coordination role appeared to involve a lot of conflict management instead of a focus on the development of the assessment task. Apparently the “Coordinator” is at fault for this situation, while the source of conflict remains unaddressed. It would make sense to expect that executive staff who recognise that conflict is a significant problem, might seek to resolve or eradicate it; instead, they seem here to

be far more keen to pretend it is not happening and sweep everything under the carpet. Just take a look at their “recommendations”...

There appeared to be limited consultation on department decisions, but this was mostly because some staff were so obstructive that the only decisions that could be followed through upon were made without their negative input. The appearance of limited consultation was not upheld by fact.

Lack of teacher resources, practical resources (such as chemicals and equipment) and also having to set up practical experiments caused frustration, but not as much as the presence of deliberately obstructive staff members. As part of all this, the role of the lab managers in assisting the development and implementation of practical tasks was seen as unclear and inconsistent. This might reflect the differing requirements of different practical tasks, but who knows?

Some more-experienced teachers alleged that they felt pressure when colleagues did not support each other by meeting deadlines, but failed to temper their finger-pointing with evidence that they were willing to reciprocate support by helping each other meet deadlines. We feel that it should also be mentioned that the above would not be as much pressure as their less-experienced colleagues would feel when these more-experienced teachers demand unreasonable deadlines and harass the less-experienced teachers ceaselessly with continual reminders to meet those deadlines.

Policies and procedures were used as a substitute for common sense, which was so lacking in the department it has led to confusion and conflict. Some department members even reported that policies and procedures needed to be streamlined to minimise some meetings. Others already knew that using common sense would prevent problems from arising in the first place.

5.3.2.2 Student-Teacher Interaction

Most students and most teachers were observed to show mutual respect in the classroom environment. Most teachers and most students demonstrated that they worked together in a cooperative learning environment. Teachers were even perceived as knowledgeable and confident in their delivery of subject content, regardless of whether such confidence was appropriately placed. Sadly, students whose advanced understanding of science might have best placed them to call teachers out on any failings in this regard, were also sufficiently intimidated by more-experienced teachers to prevent them from flagging this issue. Alternatively, they may simply have been too apathetic to make any serious effort to do so.

The only other observation that the evaluation team noted in this area was that time spent “writing on board” and students copying the work seemed questionable as an effective teaching and learning strategy. We challenge that it was probably realistically unavoidable as students did not take it upon themselves to prepare adequately for learning beyond what they could copy from written material (whether said material was a board or a book). Apparently there was nothing to be said about the approach of some more-experienced teachers (more-experienced in the darker tricks of the trade, evidently), of distributing overwhelming quantities of photocopied material likely in breach of copyright. At a school like NRPC, this would be a winning strategy, of course: students love to receive anything that they imagine might get them ahead (the more the better); students love to receive material that they can see is privileged (especially if this is by virtue of

copying and distributing it being against the law); and the teachers in question need to put almost no work in to achieve this result (besides which, it is the school that pays for the photocopying!).

A claimed 85% of students from Years 8 to 12 felt comfortable to ask their teachers for help. However, the evaluation team suppressed information that identified which teachers this correlated with, making the alleged finding useless except for the executive to pat themselves on their backs. There is also no mention of the likelihood of selection bias, when an evaluation team of school staff put to students the question of whether those students are comfortable communicating with school staff. We should, however, acknowledge that it may be true: there are quite a few newer, less-experienced teachers in the Science Department, and hence the 15% of students who did not feel comfortable to ask their teachers for help, could well be in classes taught by more-experienced teachers. Student comments did reflect that students highly valued being able to ask questions in class. Some teachers (mainly those less-experienced and less likely to take their students for granted) commented on the value and enjoyment that they derived from working with their “amazing” students at NRPC in their classes.

Only 50% of parents felt comfortable asking their child’s teacher for help. This time, the evaluation team acknowledged that this was very dependent on the teacher that their child had. Again, however, specific identifying information was suppressed, rendering this finding useless. Curiously, the evaluation team even let slip that optional comments were provided with 41 of the 189 responses. The information contained in these comments was suppressed.

“Do you feel comfortable to ask your child’s teacher for help and guidance?”	
Yes	94 (49.7%)
No	35 (18.5%)
Unsure	60 (31.7%)
Comment	41 (21.7%)

Another survey question found that 56% of parents believed that their teacher was passionate about their subject, and 35% of parents were unsure. This turns out to be almost the same distribution as the parents “comfortable to ask their child’s teacher for help and guidance”, suggesting that it may well relate to the same teachers. Given that such details were suppressed, we may never know which teachers those are.

Finally, 85% of parents believed that their child has a passion for Science. Again, this seems to match an earlier statistic: the claimed 85% of students who felt comfortable to ask their teachers for help. A causal link between these seems less clear, however. Of course, we have noticed that 85% is a lot higher than 56% (the level of belief that the teacher is passionate about science). If the 44% of teachers with questionable passion about science are able to poison the entire Science Department, with help from the evaluation team, then 100% of the parents are about to be disappointed.

5.3.2.3 Students

It was apparent in classroom walkthroughs that that the level of student interest and motivation varied widely across the classrooms visited. This probably reflected teacher engagement, but again without information identifying which teachers were which, the finding is meaningless. Furthermore, “walkthroughs” were exactly that, with no guarantee that the initial impression would be upheld by a more sustained and complete period of observation. Perhaps the evaluation team did not in fact wish to discover the reality inside the classroom, good or bad.

Students claimed that they did not enjoy learning directly from the textbook and placed a higher value on “student-centred learning”, whatever that was supposed to mean. However, we know that NRPC is all about textbook learning and memorisation of texts word for word, so we know that these students were, on the whole, writing what they thought people might want to read — or just plainly and simply lying. As we shall soon see (5.3.2.4 Assessment and Reporting), these suspicions turn out to be well-founded.

Students expressed a wish to see less repetition of content, and a variety of teaching strategies used by their teachers. However, they would most likely then complain that they did not receive adequate opportunities for revision work. There was also no information, perhaps due to none being offered, or perhaps due to suppression by the evaluation team, on just what teaching strategies might be preferred.

Parents would like their child to be in study groups with their peers, but only 35% of senior students reported that they had formed or were part of study groups. It is unclear why the staff at a school like NRPC should encourage this kind of factional behaviour, because intelligent students naturally help each other to learn even in informal settings. There is no scientific evidence to show that a formal “study group” approach is of any value above attending formal schooling.

5.3.2.4 Assessment and Reporting

In junior science, 65% of students valued peer assessment, while among seniors 52% enjoyed peer assessment. The exact relevance of this finding is unclear, given that science, while subject to peer review, actually involves testing of hypotheses against objective reality.

Students identified a few techniques they believed teachers could use help the students.

- (1) Teachers could help by “clarifying details to check student understanding”. The fact that this needed to be raised is a concern, as it should be the role of a science teacher in the first place.
- (2) Teachers could help by “elaborating on every dot point” and “ensuring that all dot points have been covered”. This matches the idea that students were plainly and simply lying when they claimed that they “did not enjoy learning directly from the textbook” and placed a higher value on “student-centred learning”. Apparently the syllabus and its “dot points” are the be-all and end-all of science. Before any fools step in to deny this allegation, readers should ask themselves: why do books like the “Dot Point HSC” series exist? Why are these books on the market?
- (3) Teachers could help by “giving students time to review and make sure that they have learnt the content”. Similarly to with (2), and as predicted, students who indicated

earlier that they wanted to see “less repetition of content” have identified that they did not receive adequate opportunities for revision work.

- (4) Teachers could help by “providing practice papers and helping students to revise”. It is well known that NRPC is a leader in “teaching to the test”. The students know it, as do their parents.

Senior student comments reflected a popular sentiment: many students felt that they needed tutoring to be “ahead of the content prior to assessments”. This too is typical for NRPC students, and usually represents pathological anxiety based on a need to be better than the next person, rather than legitimate concern that the relevant content was not covered in good time. On the other hand, in view of how NRPC policy has swung hard against any acceleration of core subjects, it is entirely possible (however improbable) that these are actual legitimate concerns, over the use of teaching practices that actively retard what would otherwise be talented students.

Students reported that they would like all content and outcomes covered prior to assessments, perhaps a week or two in advance, to allow them time to revise. Again, this was a predictable counterpoint to students claiming to prefer less textbook learning and that they wanted to see “less repetition of content”. They also commented that they would like specific and constructive feedback with a clear link to the syllabus and content. They did not seem to care whether there was a clear link to real science.

Students (and, apparently, staff) failed to see the value of oral assessments. Apparently this was worth mentioning, as if it were an important point. Let us daringly suggest that if the same question were asked in a review of, say, the Literature (English) Department, no sensible objection would be raised, or if it were, it would be immediately suppressed by the evaluation team. You can bet that if there were no oral assessments, then outside observers or even those within the same school but from other departments, would question the relevance of the Science Department. It is not as if scientists ever need to talk about or present their work; so until the unwarranted excess of “impact on society” questions in the HSC is dealt with, all those jokers who think that oral assessments are valueless should shut their mouths and their “contributions” will be assessed to have the value they deserve: zero. This concern from students also likely reflects the fear of public speaking that is so common among the NRPC student population, who all too often would rather go about their business quietly without making any impact on society at all, positive or otherwise. (Which is the sad thing about this school: whole cohorts of students taking “safe” options like medicine, to become slaves of the healthcare system rather than using their intellect to lead any initiative for change.)

Practical work and experimentation were seen as an important part of formative assessment desired by all students. In fact, practical work and experimentation are what science is all about, so it should be part of any kind of assessment, formative or summative. Of course these students would prefer formative assessment to summative assessments, as the students are highly competitive and yet highly stressed by any genuine examination. Their propensity to learn things from the textbook renders them correspondingly less likely to translate that knowledge into real, practical applications. This clearly shows, too, and worsens as students progress through the years at NRPC (reinforcing the idea that the school must be doing something that impairs student intelligence as time goes on).

Some teachers indicated they would prefer to move away from pen-and-paper assessment, and towards other forms such as model building, science shows or more creative tasks. However, with

students already being fearful of simple oral presentations, this is unlikely to be received well. It is also unlikely to be implemented, as such assessment frameworks are much more complex and would require far more cooperation from all science staff involved, than is currently feasible. That is, they are already impossible if they require any cooperation at all. Just kidding.

There was a suggestion that questioning across a majority of lessons needed to be “higher order”, and that teachers needed to wait longer after questioning and probe students to answer. It is doubtful that this suggestion came from either the students or the science teachers. It is less doubtful that this reflects the ability level of the students and teachers, a deficit that carries through into summative assessment tasks (as we have seen above, in 5.1.1.1 Assessment).

“This test is too hard! We should give them easier questions that they can answer, to encourage them.” — Experienced NRPC Science Teacher, objecting to the inclusion, in assessment tasks, of questions that the science teacher herself (among various others) was unable to answer correctly.

Where summative assessment tasks were concerned, apparently there were too many tasks in junior assessment, a reported number of up to 12 tasks. This reflected a failing in the evaluation team to be clear on what constitutes a “task”. Equally by their methods, an examination paper with 30 multiple-choice questions could contain 30 tasks, 3 times the claimed number of junior science assessment tasks. Perhaps they imagine that an essay of 1500 words actually contains 1500 tasks, which is 125 times the claimed number of tasks.

A claim was made that some assessment tasks such as the SRP do not have marking guidelines. As SRPs have been part of the curriculum for over 10 years, and it is known that the Science Department have marked these SRPs according to guidelines, this claim seems absurd. We can only conclude that it must have been advanced by someone who is at best extremely ignorant and careless, or perhaps more likely lying to intentionally make the department look bad.

5.3.2.5 Validity

This subtitle is included here as it was used in the original internal evaluation document. “Validity” was cited under “Assessment and Reporting” as one of the “areas of focus (Aspects) ... used to develop an overall picture of student, teacher and parent perceptions”. The words almost sound cool, but are they meaningful?

The points included under this subtitle were varied and not obviously closely related. We do not believe “validity” means “miscellaneous”, but we are prepared to be corrected and possibly learn something new along the way. For the benefit of readers, who are invited to share with us their thoughts on how we can correct our understanding, below are some of the items listed.

- (1) *“teachers ... had a common understanding of all outcomes”*
- (2) *“explicit and detailed teaching programs are suggested”*
- (3) *“deadlines must be adhered to and time for professional reflection”*
- (4) *“too many people involved in each task”*
- (5) *“students comment that they would like ... recommendations on how to improve”*
- (6) *“seniors would like more feedback on practice papers”*
- (7) *“some assessment tasks such as SRP do not have marking guidelines”*

Hence it is unclear what this word was meant to mean in the review document. Concerningly, it was just as unclear that the authors of the internal evaluation document knew what they meant.

5.3.2.6 Recommendations (better described as “Demands”)

“Respectful, professional interactions, as outlined in the Code of Conduct, are expected at all times by all staff. It is easier for everyone if we simply pretend that conflict does not happen. Keeping in mind what was said about “Coordinators”, one way to help the under-carpet sweeping is to avoid discussing problems with colleagues, as such discussion will be considered inappropriate gossip about colleagues. That is, staff should avoid seeking to resolve conflicts internally within the department, and the preferred method is to escalate it to the executive immediately. We want teachers to be good role models for the students, and this should be a good start.”

“Staff are encouraged to question inappropriate comments at the time of the issue. To strengthen this principle, they are encouraged to question potentially inappropriate comments as well. In fact, they are encouraged to question the potential for inappropriate comments, even before such comments happen. Any potential for behaviour that may be construed as possibly inappropriate, even behaviour that would not normally be considered inappropriate, needs to be dealt with by the Head Teacher as soon as possible. Where it is actually the case that obstructive staff are being inappropriate in dealing with the Head Teacher, it is fully the problem of the Head Teacher and the executive will wash their hands of the matter.”

“Staff are encouraged to value the strengths of colleagues. The fact that many of the staff lack any appreciable strengths in science education is no barrier to this demand, because the lack of competency is fully acceptable within this department at this school. We should consider the lack of competency a strength in itself: those who lack competence are leaders of incompetence, and are strong at having more opportunities to learn things from their colleagues than the colleagues they could be learning from. They are also strong in that they have the strength of will to refuse to learn from their colleagues, even though it could improve them greatly.”

“Department meeting agendas to be circulated to staff, nominally to allow time for any staff to add an item before the meeting to allow for input.” There are rumours that the actual reason is to defeat the meeting, because when there is already concern about the excess of procedural overhead and a large number of meetings, the solution is clearly to amplify the level of paperwork required for each meeting. “Staff are also encouraged to share ideas, thoughts and resources in the department by adding them to the agenda of the department meeting. This is in preference to sharing ideas, thoughts and resources directly with one another, because casual sharing will be considered inappropriate gossip.”

“All staff must be consulted in all department decisions. In particular, when malicious and obstructive staff want to increase their influence across the department, they will now have a voice in every department decision, even those decisions that would not otherwise concern them. It is not acceptable for staff to act on behalf of others; to successfully implement bureaucracy in its full glory, everyone must have said what they want to say about everything before we can move forward.”

“Whole school information from executive needs to be disseminated via email to all Science staff within 2 days.” Apparently this is the responsibility of someone in the Science Department, rather

than the executive who source the information and have the email addresses of all staff (including Science staff). Perhaps the executive believe that the Science Department is the whole school, but just wait until the last bit, in the following paragraph.

In their final line, underscoring their campaign against science, the internal evaluation team direct that the SRP be simplified and shortened. They provide no justification for this, except that "the timeframe needs to be manageable for staff and engaging for students". That would seem to instead support retaining the current format, as simplifying the process until no novel research can be performed, and shortening the timeframe until no long-term planning is required for research, are both unlikely to engage students.

Aside from a knee-jerk reaction to fabricated claims that the SRP has no marking guidelines, what could possibly be the purpose of forcing a rework of such a significant part of junior high school science? We note, of course, that there are no other projects in any other department that span more than 1 term (patently untrue, of course, but just for the sake of argument). Perhaps if there were, this move might seek to reduce the importance that students place on science, and leave that space open for other departments to take over? Like Mathematics...

6 Review :: Mathematics

For various reasons, ANSWER has not had as much opportunity to infiltrate the NRPC Mathematics Department, primarily due to our stronger focus on science. We note also the astoundingly hostile defensiveness of the Mathematics Department, so much so that the placement of mathematics on the walls was considered vandalism — and hence we will review this approach to education as well. Readers can be reassured that this section of the review document is far shorter than the part concerning science.

6.1 Classroom Teaching

Little details are known about classroom teaching in mathematics at NRPC. This could well be because there is little classroom teaching of consequence, but given how little we have observed, we would have to leave that interpretation to the reader. We have been fortunate to glean what little we do know, from occasional discussions with students, and far more occasionally, from discussions with their caregivers and teachers. With regard to the last, it disturbs us just a little that the teachers seem to struggle when the conversation moves from simple demographic information about who is teaching whom, to matters of actual content and delivery.

6.1.1 Context

As with science, changes to teaching of mathematics at NRPC have occurred in the setting of more general cultural shifts at the school. The Ages of Innovation, of Complacency and of Arrogance apply equally to mathematics as they do to science. Hence it is in the Age of Innovation, the 1990s era of unprecedented advancement, that our story begins.

A Mathematics Enrichment programme commenced in 1993, transforming the performance of NRPC students from “average” to “spectacular” over the next 4 years. The programme was initially targeted at Years 7 and 8, and so 4 years corresponded to the time required to saturate all cohorts of students from Year 7 to Year 12 (comparable to the 5 years between FAST 2011 for Year 7 students, and predictions of their success in the International Science Olympiads in 2016). As our data clearly reveal (6.2 Performance, below), it did not take long at all for the school to reach the peak of its mathematical performance.

To their credit, the executive staff at NRPC at the time recognised the significance of these results, and responded in a way defining of the Age of Innovation. They dared to take something that was working well, and build on it to make everything else better! They took the best parts of the Mathematics Enrichment programme, and wrote them into the conventional mathematics syllabus. “My thanks go to [two key teachers in particular; names withheld to protect privacy] for their tireless efforts in this field.”, wrote the head mathematics teacher of the Age of Innovation...

“One of the greatest achievements in 1994 has been the success of the junior enrichment program. I believe the students concerned gained a great deal from the program. Some aspects of the program have been incorporated in the school’s general

teaching programs thus benefitting all students.” — Mathematics Report in the School Yearbook, early in the Age of Innovation.

One of these teachers continued to innovate, and in 1998, saw the commencement of Informatics Enrichment. After some ups and downs, informatics has been one of the few areas in which NRPC has retained its dominance. We suspect that this is almost entirely due to the skill of the students, as there is no “informatics” subject in high school, and certainly the Informatics Enrichment programme is conducted essentially without staff supervision. That does not stop the staff members who are nominally responsible for maintaining the programme from stepping in to grab the credit, of course.

6.1.2 Progress

The last 20 years has seen NRPC evolve through its Age of Innovation, into an Age of Complacency, finally reaching the current Age of Arrogance. What effect has this passage of time had on the Mathematics Department, and what does it mean for the future? Here we look at some of the most prominent features of practice in mathematics education at NRPC: inappropriate pessimism, low expectations, inappropriate optimism, and hostile defensiveness.

6.1.2.1 Inappropriate Pessimism

As we have mentioned many times before, this is NRPC! It is a selective school that receives the most academically gifted students right from the start, allowing it to surf the wave of selection bias all the way to HSC success even without good mathematics teaching. Fortunately it also means that most of these students have a fair degree of resilience, allowing them to continue to do well despite not merely the lack of good mathematics teaching, but the presence of bad mathematics teaching. The problem is that they do not do as well as they could, if that teaching were good instead.

What all this means, ultimately, is that when staff are pessimistic about the abilities of their students, that pessimism is almost certainly misplaced. Superstitions and presumptions about student ability are rife among the mathematics staff, likely due to a top-down flow of nonsense as well as the departure of any remaining teachers who were familiar with the circumstances that created mathematical success during the Age of Innovation. The sentiment in the Mathematics Department seems to be an uncomfortable mix of fear and righteousness: teachers absolutely certain that their distorted beliefs about gifted students are correct, yet with a feeling that maybe something somewhere does not quite match the perfect world of their imagination and this perfect world is about to be shattered by the very same students.

We have no doubt that it is a very confronting situation for a teacher to be in, to be responsible for the education of students who are probably more intelligent, and likely more knowledgeable, than that teacher. In an ideal world, we would still expect this to inspire the teacher to rise to the challenge, and improve their own abilities, to be able to provide the education required. After all, they are professionals who (theoretically) should have the requisite training to teach the students they are responsible for. Instead, we find that NRPC staff have built a culture of dismissal and blame, laying the difficulties of incompetent teachers right back on the students.

Rather than taking the opportunity to advance their own skills, mathematics teachers at NRPC have decided to restrict what and how their students can learn. When challenged about their practices, these teachers fall back on the usual excuses and pretexts, centred on concealing their incompetence. For example, one of the “experienced” staff offered the following justification in apparent seriousness.

“Absolutely not! Accelerated students stop doing mathematics, then they become bad at mathematics, and then they fail at university.” — NRPC Mathematics Head Teacher, when asked her opinion about accelerating students in mathematics.

Actual meaning: we do not accelerate our students, because we are too inept to provide the teaching they need to do well. Instead, we would prefer if these students run out of guidance from their mathematics teachers, then become frustrated and lose interest and momentum in mathematics, and then do something else at university.

Just in case anyone thought that this might have been taken out of context, or perhaps an unrepresentative sample of opinions in the mathematics department, we considered some comments from students as well.

“The feeling I got from the maths department was that they would rather burn in hell before letting people accelerate LOL” — student.

{→ “<http://community.boredofstudies.org/2/school-secondary-education/349483/reason-north-rocks-poaching-1st-state-why-not-happening-other-states-2.html>”;
retrieved 2016-07-02}

The same student later wrote “Also, rocks has developed a really really rigorous curriculum for maths over the years and by letting kids accelerate a lot of that will become undone.”. Sadly, this student probably had not realised that the Age of Innovation ended in 2001, and that one of the hallmarks of the Age of Arrogance was historical revisionism: most of the innovative inclusions in the mathematics syllabuses from that earlier Age had been removed by 2012. We do note also that this student was no International Mathematics Olympiad student, and indeed seemed somewhat dissatisfied that people might have been interested in the Olympiads. The truth, of course, is that although an excellent syllabus was developed in the 1990s, the best parts of it have already been removed, so whether or not students accelerate, the most positive aspects of mathematics education at NRPC have already unravelled.

This recurrent pattern of weakening the syllabus is something we see time and time again at NRPC. One theory as to why it has come to this, stems directly from the feelings of fear and righteousness among current staff at NRPC. Some have speculated that the teachers may be deliberately weakening the syllabus, as a way to weaken the students, and so eventually end up with a cohort of students who are stupid enough to believe that their current “experienced” teachers are any good. Some would say that this has already happened. Others at ANSWER might say that this in fact gives the teachers too much credit for coming up with such a brilliant strategic plan; but the alternative is not much better.

The weakening of the syllabus is more likely founded on an insulting assumption that students are stupid and incapable. This idea should immediately bring to mind the aliasing effect (section 3.5) again, in the sense that a stupid and incapable teacher is more likely to underestimate a student whose intellect far exceeds that of the teacher. That first obvious conclusion aside, the idea that NRPC teachers are insultingly dismissive of student ability seems to be supported by the multitude

of cries that “the test is too hard” and “give them easier questions ... to encourage them” (just as it happens in science, 5.1.1.2 Classroom Teaching). While the second obvious conclusion is that it is the teachers themselves who are finding the tests too difficult, and who are needing of encouragement, we shall take the assumption at face value just for the sake of argument.

If there really are students at NRPC who are stupid and incapable, then almost certainly it is how they have been educated that turns them into such students. At an academically leading selective school, we should reasonably expect that the intake of students is almost entirely of intelligent, capable ones. Something must have happened between being selected for the school, and becoming stupid. For most of these students, we might expect that the biggest change that is common to them is the fact that they have started attending NRPC.

6.1.2.2 Lower Expectations, Lower Results

Hence our third obvious conclusion, which anyone who tries to weaken the syllabus at a school like NRPC has failed to realise: lower your expectations, and as a consequence, you will lower your results. As expectations fall, so does performance. Here at NRPC, “experienced” teachers have made a culture of it, and it has flowed through to students and their caregivers, who have all learnt to expect less as well. Confined to a syllabus of garbage, all that the students bother to learn these days is trash.

It is well known that gifted students need to be extended beyond the “normal” level or they will tend to underachieve. What is less well known is that mathematics teachers at NRPC can no longer teach even at the “normal” level, as we shall see in the next section. First, demonstrating their inappropriate pessimism, they remove all the extension components from the syllabus so that teachers will not feel “undue” pressure to teach them. Next, they remove all expectations that teachers will be able to teach anything sensible at all.

Just before we move on, one of the ANSWER agents wanted us to share a short conversation that the agent had with a student (of NRPC), that is at once saddening and inspiring.

Student A: *“Why do we repeat the same things again and again (in mathematics)?”*

Agent Z: *“Your mathematics teachers have to follow the syllabus (because they are incapable of doing things any differently), and half of the syllabus is just revision. You are stuck with this syllabus because your mathematics teachers believe that accelerating students means they finish early, then they stop doing mathematics, then they fail at university.”*

Student A: *“Can’t we just do more mathematics?”*

Sorry, Student A: maybe you can, but your teachers are unable and unwilling to.

Agent Z: *“Actually, legend has it that the mathematics head teacher (who believes that accelerated students finish early, stop doing mathematics, and fail at university) also says that anyone who cannot see that these things are true, is unfit for their office and embarrassingly stupid.”*

Just ask the 2006 Fields medallist from Australia.

6.1.2.3 Inappropriate Optimism

In contrast to the misplaced doubt they have about student ability, the staff at NRPC seem to be full of misplaced confidence in their own. This is NRPC! It is a selective school that receives the most academically gifted students right from the start — students that could conceivably generate an uncomfortable mix of fear and righteousness in the teachers who teach them. Curiously, however, this does not seem to stop the same teachers from presuming that they can get away with teaching the students poorly.

The fact that the teachers are so confident in themselves, forces us to consider whether they really are onto something, and really can get away with teaching the students poorly. Perhaps their confidence is not so misplaced after all, and they are very capable teachers — capable of pulling the wool over the eyes of all the other stakeholders in NRPC. We have already discussed (at some length) the presence of ungulates and their sewage at this school. These teachers are not good at teaching the subject that is nominally their area of expertise, they are merely good at hiding this failing.

Back at the start of the Age of Innovation, there were 2 classes of NRPC students each year studying the HSC Mathematics 4 Unit course. Back then, there were more than 2 mathematics teachers at the school capable of teaching this course. As time passed, the number of students seeking to complete this course grew, to fill 3 classes by the end of the Age of Innovation, for which there were at least 3 mathematics teachers capable of teaching it. They were the same teachers, however, and they were not getting any younger. One by one, they retired; one by one, they were replaced by teachers who knew nothing of innovation, and who wanted nothing to do with it. As attitudes shifted from complacency to arrogance, the new flock of mathematics “teachers” took it upon themselves to destroy any records that might expose their disgraceful incompetence in comparison to those who they replaced.

Having erased all significant extension components from their syllabuses (components they were too inept to teach anyway), they could now paint themselves at the apogee of expertise in high school mathematics. There is no part of the new syllabus that the current mathematics teachers cannot teach! They know everything! That is how they feel justified in arguing that accelerated students would run out of mathematics to do, stop doing it, and then become bad at mathematics as a consequence. Who could possibly call them out on this? The students, who are dependent on these teachers for guidance? Their caregivers, who have established a culture of accepting the teacher as definitive authority on the matter? Other teachers, whose ranks no longer included any who knew enough mathematics beyond the HSC to see through their lies?

Fortunately, this creative and near-perfect plan of the NRPC Mathematics Department suffers from one fatal flaw: reality. Many years on from a time when NRPC fielded 3 Mathematics 4 Unit classes with more than 3 capable mathematics teachers, there are now 5 such classes — and 0 such teachers teaching them! This harsh disparity between what they claim to offer and what they can actually provide, speaks volumes about their ability to evaluate themselves, on top of any direct mathematical incompetence that we are already aware of.

“I’m doing the Mathematics Extension 2 course in the holidays so that I know what to teach the students.” — NRPC Mathematics Extension 2 class teacher, echoing the sentiment of the other 4 Mathematics Extension 2 class teachers.

Well, at least some of the mathematics teachers are able to recognise that they are simply not good enough to teach at the required level. Such a teacher deserves some respect for admitting it. A casual admission and a token holiday effort to brush up on what your students are learning, however, is not enough to ensure that academically gifted students will receive a good education in mathematics.

6.1.2.4 Defensiveness and Hostility

More disturbingly, other mathematics teachers show a tendency to become very defensive, and indeed hostile, when doubt is cast on their ability to teach mathematics. Note of course that we would argue that this scenario is more accurately represented as light being cast on their inability to teach mathematics. It is an all too common and all too often accepted pattern of “human nature” that is entirely consistent with the current Age of Arrogance, and the overconfidence that most of the mathematics teachers have in their own abilities.

The defining crisis occurred early in 2016, when the “Hall of FLAME” project replaced ageing posters from the Age of Innovation with bright new mathematical content while the original panels were taken for restoration. ANSWER agents spent hundreds of hours writing, formatting, printing and posting high-end textbook-quality mathematics articles that students could walk past, read, and learn from quickly and effectively. In an incontrovertible demonstration of the ineptitude of the mathematics teachers, the process had been underway for months before even a single staff member realised that any change had occurred.

Much to their discredit, senior staff members reacted with threats and pointed accusations of “vandalism”, a description far more suited to their own treatment of the extended mathematics syllabuses than to the restoration of Age of Innovation art while valuable mathematics resources were provided in their place. Their snivelling protests at the temporary removal of artwork that they themselves had no part in creating, contrasted with their joyful pride at ruining a previously well-posed mathematics syllabus, could not have sent any clearer a message.

What did they care about providing students with the best educational experience possible? These geniuses evidently considered it more important to maximise the visibility of peripheral remnants from the Age of Innovation that made them look good, while eliminating less obvious but more important material that made them look bad. Ironically, if they had simply and graciously accepted the gift of free restoration and publication of valuable educational resources, they would have in fact gained a great deal of respect from the community in general.

6.2 Performance

Here, we see the consequences of the transition from innovation to arrogance.

6.2.1 Data

NRPC AMC performance: distinction awards and above.

Year	2015	2014	2013	2012	2011
Prizes (including Medals)	60	67	60	53	104
High Distinctions	171	186	209	191	252
Distinctions	341	351	341	322	284

Year	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Prizes (including Medals)	74	87	80	95		75	88	80		89
High Distinctions	237	250	238	230			167	168		234
Distinctions	337	367	374	366			352	396		344

Year	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991
Prizes (including Medals)	83			103	93		75	65	28	
High Distinctions	191									
Distinctions	324									

{→ "<http://www.northrockspoaching.nsw.edu.au/about/reports>"; retrieved 2016-06-04}

Chart: NRPC AMC prizes, with interpolation included.



Chart: total NRPC AMC distinction and higher awards, interpolation included.

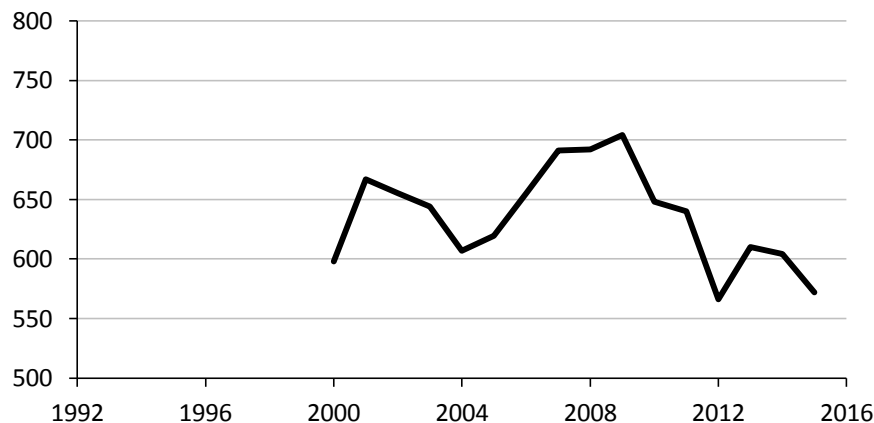
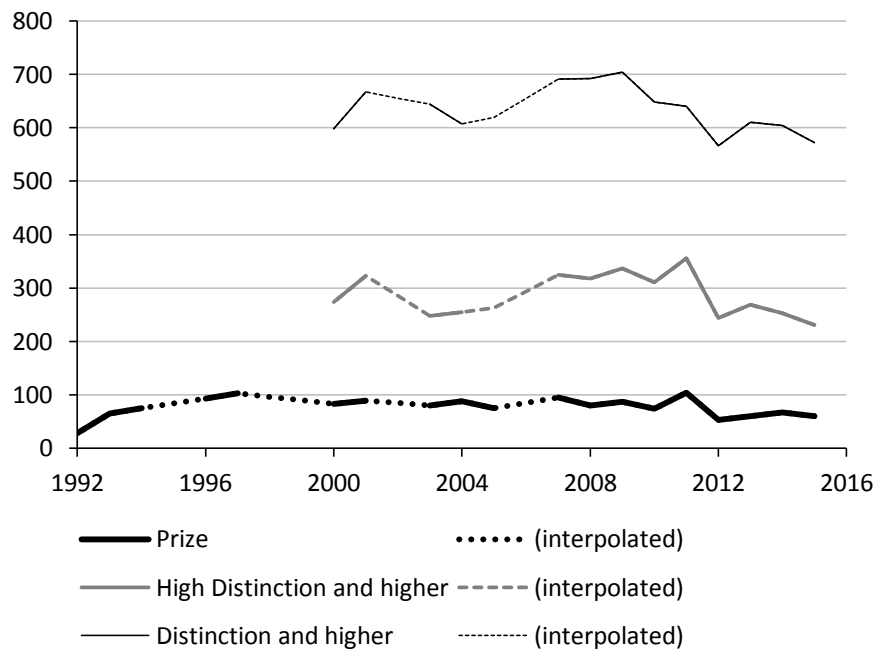


Chart: breakdown (stacked) of NRPC AMC distinction and higher awards.



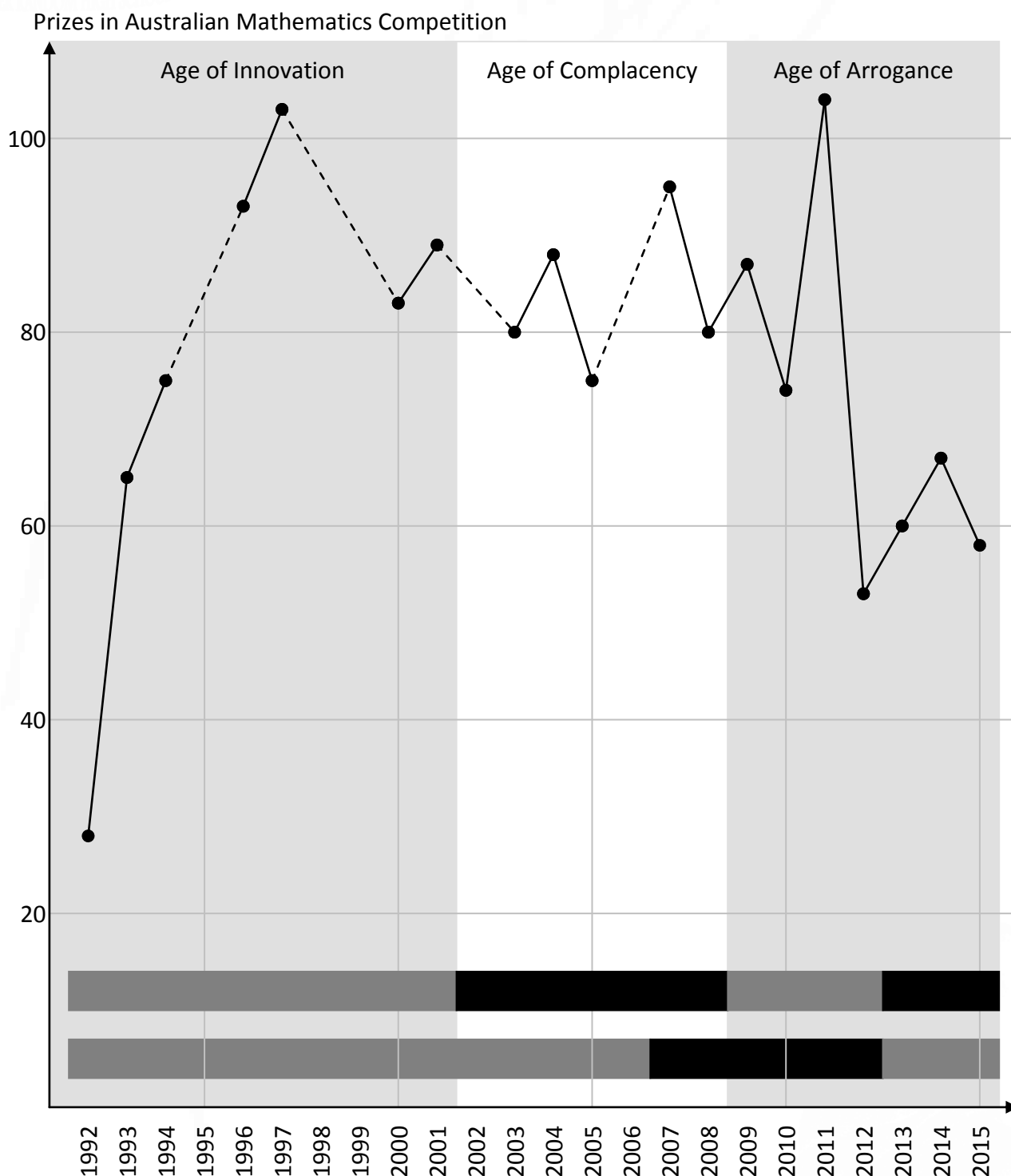
6.2.2 Interpretation

While these data speak for themselves, and we need not say too much, we would like to draw the attention of the readers to the following key features.

- Overall gradual decline in the number of all higher awards. This is most consistently seen in the prize count.
- Marked increase in prize count over the first 4 years of the Age of Innovation.

- Marked drop in performance in 2012, leading to sustained lower levels of achievement and lower prize counts than in the first year after the Mathematics Enrichment programme began.

Major shifts in performance do not coincide with changes to the structure of the AMC, leading us to conclude that the causes must relate predominantly to changes at the school. Readers are invited to consider all the data and formulate their own interpretations. What do you think?



7 Closing Remarks

7.1 A Comment on Bias

The collection of data for our review of science and mathematics teaching at NRPC involved direct observation of teaching practices, engagement in staffroom conversation, and casual discussion with selected students involved in an extension programme. This may have introduced bias predominantly in the expectations of the students, but it would be in line with the school being the leading poacher this side of the Murray River. We side with the students on this one: it is their education at stake, and if they are the best students of a school filled with the most intellectually capable students in NSW, they should be the ones we hope to provide the best education to.

7.2 Value Received and Value Addition ("from Knowing to Nothing")

We have now seen how NRPC takes the best students in Year 7 (and continues to poach students from other schools as they progress), and then over the next (up to) 6 years exposes them to a sustained assault on their intelligence until they are reduced to dimly-smouldering burnt-out shells of the intellectual giants they once promised to become. The rise of NRPC was predicated on the notion that by concentrating the best students and teachers together in a highly selective school, it would offer the most added value to all involved. Caregivers chose to send their children to the school in the hope that it would do exactly that.

Unfortunately, times have changed, and rather than adding value the school now subtracts it, leaching it from the students whose minds have been made porous from the meaningless grind to which they have been subjected. Once seen to be the beacon of academic achievement, it is now a school that takes leaders and turns them into slaves. The Age of Innovation has passed: all there is left for the students to do is follow, and follow they will.

We can see the continuation of this all the time, because the school still prides itself on its "community engagement" in extracurricular endeavour. Even for a school that has "all talk and no action" as its motto, its students are surprisingly and intensely vocal about perceived social issues that are highly visible and which they can or are willing to do nothing about. They find it easy to stand and broadcast the opinions they have taken on board from others. Sadly, they find it far too difficult to look at themselves, to recognise that they can no longer ignore the more pressing and immediately relevant concerns at their doorstep: the failure of their own education.

7.3 Conclusion

In a way, NRPC has been a victim of its own success. As a school where students would routinely outperform their peers from the rest of the state, in varied academic endeavours but most visibly the NSW HSC, it has increasingly attracted students and caregivers whose sole concern has been exactly that: maximisation of the ATAR at the cost of all else. As a school where students were far more dedicated to intellectual pursuits rather than to disruptive and disorderly behaviour, it has increasingly attracted teachers whose failings in instruction rendered them incapable of dealing with classes at any other less-sheltered school.

All of these changes have brushed aside the circumstances that brought about that success in the first place. It was once a school that brought the best teachers and students together, enabling them to work together to achieve the highest academic results. NRPC is now a school that brings stressed, ATAR-obsessed students and pathetic, cowardly teachers together, enabling them to dance the descending spiral of co-dependency all the way to mental health demise. Readers who are at this point preparing to protest that all this is poking fun at psychiatric problems, should shut the physics unification question up and pause for a moment to think: we consider this to be about as entertaining as the spiralling statistics we have seen throughout this review. If anyone thinks it is all just one big joke here then let us see their considered response, in which they detail how it is humorous to wreck the education of a whole generation of academically gifted students by screwing up their school.

As we have seen, the teachers are largely to blame through all of this, though they by no means bear sole responsibility for the damage. They could not carry out their disastrous campaign without the support of students and caregivers, even if that support is not through action, but inaction. Just as bystanders lend support to bullying simply by being passive, the same principle applies to the staff who are trying to destroy our school.

We know full well that very few of our readers will want to do anything about this. Their own individual high ATAR is far more important. The HSC is everything. Nothing else matters.

ΛΟΓΙΑ ΔΕΝ ΔΡΑΣΗ!

Send us some words.

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