



Submission to the House of Representatives Standing Committee on Indigenous Affairs

March 2016

1. Introduction

This submission is made on behalf of Good to Great Schools Australia (**GGSA**), a not for profit organisation based in Cairns devoted to school reform in disadvantaged Australian communities (see www.goodtogreatschools.org.au for details).

GGSA is the owner of the Cape York Academy (**CYA**) (see www.cyaaa.eq.edu.au for details), formerly known as the Cape York Aboriginal Australian Academy (**CYAAA**), which operates the state primary schools in Aurukun, Hope Vale and Coen.

The work of our organisation extends back 15 years to 1999/2000 when Cape York leaders, led by Noel Pearson, commenced the Cape York Welfare Reform Agenda. Since that time, education and welfare reform have been central to what came to be called the Cape York Agenda and a great deal of experience in indigenous education reform has been gained over the past decade and a half. When we began our work, notwithstanding the parlous state of indigenous education in the region, it was nevertheless a difficult scene to become involved in. For those outside of education providers, it was difficult to contribute to a closely guarded and protected space. This was surprising given the universal acknowledgement of poor outcomes. We originally thought that given the longstanding failures, any involvement by indigenous community leaders would be welcomed with open arms. This was certainly not our experience.

The scene was wracked with low expectations, ongoing failure and characterised by a succession of new policy paradigms announced by the government of the day, all promising the final solution to the problems of the past. This is what we came to call the 'Groundhog Day' of indigenous education reform – another report denouncing the embarrassing state of indigenous school outcomes, followed by a new policy framework with attached budget commitments, all announced with fanfare and then each phase playing out for several years and not yielding the expected improvement.

The work that led to GGSA was first developed within Cape York Partnerships, a not for profit organisation created to advance the Cape York Agenda. The first educational work

was focused on the small school (approximately 50 children) of Coen, in central Cape York Peninsula, in the early 2000's. This work was largely peripheral to the school and consisted of trial programs focused on cultural transmission between generations. The hypothesis was that by engaging family and community members in school based culture programs, families could be 'hooked' into their children's education. The program called Computer Culture enabled children and family members to construct cultural and historical projects utilising elders and family members as knowledgeable informants and the hypothesis of using culture as a hook to bring the community into the school actually proved to be correct. This engagement then led to a number of other program ideas aimed at addressing school attendance, school readiness and financial set-aside of money for children's education expenses. This suite of programs was developed with Coen community members who worked with Cape York Partnerships as tutors in the school, most of whom were young ladies, many of whom were young mothers who had children at the school.

These 'demand side' initiatives were premised on the idea that school reform required a lift in 'learning demand', and 'teaching supply'. Learning demand included students attending school and ready to learn, parents supporting children in their education and a community valuing the importance of education. Our initial conviction was that learning demand needed to be built in the Coen community. We also had a focus on the concept of teaching supply, which is the responsibility of teachers delivering effective teaching in the classroom, school leadership supporting the teachers and school governance providing for an effective school, but teaching supply was not an initial focus of our work.

We were able to proceed with learning demand side initiatives but the teaching supply side was outside of our sphere of influence. We were not allowed to interfere with provision of teaching in the classroom.

After a couple of years of working with Coen on the learning demand side programs and being pleased with the response of parents and community members and seeing an increase of attendance, engagement of parents in school activities, increased interaction between teachers and community members and parents doing their utmost to support their children to attend school and to make financial provisions for them through Students

Educations Trusts accounts (**SET**), we were disturbed that this high level of student and family engagement in the school was not reflected in improved attainment. How could it be that children attended at high rates at Coen and yet the student results were as bad as anywhere else in Cape York? Coen was indistinguishable from schools with even lower attendance.

Following the Australia-wide debate around the Reading Wars, we decided that those advocating phonics and explicit instruction were on the right side of the argument. We therefore got in touch with Professor Kevin Wheldall at Macquarie University and asked him to trial his program, MultiLit (Making up lost time in Literacy) in Coen. Professor Wheldall agreed to undertake a trial and we were pleased with the outcomes achieved with the Coen children in the two years that we ran MultiLit in the school. At this stage, we were permitted to introduce MultiLit as a tutorial program that was providing remedial literacy support on the periphery of the school. We still had no involvement in the classrooms proper, but at last we had intervened with our preference for the explicit teaching of literacy to these indigenous students.

This work at Coen was the genesis of the school reform agenda that CYAAA and now GGSA are prosecuting in various remote schools in Queensland, Northern Territory and Western Australia.

The story of this development is set out in a policy document we produced in 2009, *'The Most Important Reform'*, copy of which we provide to the committee. In these first eight years, we accumulated a lot of experience in cultural education and learning demand side support for students, parents and communities, and finally the fundamental teaching supply side issue of literacy. We were then in a position to conceptualise an indigenous school reform agenda and commenced a business case for the establishment of the Cape York Aboriginal Australian Academy.

2. Cape York Aboriginal Australian Academy

2.1 History

By 2009 it had become obvious that Cape York schools like Coen were not delivering effective instruction in the classrooms. Our work with Kevin Wheldall made this very clear to us. There was an absence of effective instruction, and effective instruction had to be the starting place for school improvement and better student attainment. There was a failure in the classrooms and the failure was teaching. In the third year of the MultiLit trial, we asked the question why was there effective instruction taking place in the MultiLit tutorial room but not in the classroom? Rather than offering a remedial program, why weren't we ensuring that the initial teaching of literacy was successful? We therefore attempted to get the teachers in the school to collaborate with MultiLit to introduce the explicit instruction that was inherent in the MultiLit program. This trial was not successful because the classroom teachers and school leadership were resistant to the explicit instruction approach. Without having authority in the school, it was like there were two cooks in the kitchen and the MultiLit program was not fully embraced.

It was in the light of this experience that it became clear that the introduction of effective instruction in the classroom, through explicit and direct instruction, was not going to work unless the governance of the school and the school leadership authorised a different instructional approach to that which prevails in most classrooms in remote communities and elsewhere in state primary schools.

We decided to develop the Cape York Aboriginal Australian Academy which would offer a comprehensive curriculum with explicit instruction at the centre. Throughout the course of 2009, these investigations included the publication of *The Most Important Reform* and Noel Pearson's Quarterly Essay *Radical Hope*. It also involved a visit to the United States by Pearson and community leaders from Aurukun and Coen, including visits to charter schools in New York, Portland and Atlanta and a visit to the National Institute for Direct Instruction (**NIFDI**) in Eugene, Oregon. It was here that the relationship between the founder of Direct Instruction, Siegfried Engelmann, and his organisation NIFDI, was established and agreement made for NIFDI to support the establishment of CYAAA through the Direct Instruction (**DI**) program.

The business case was put to the Queensland government with the support of the Commonwealth Minister for Indigenous Affairs, Jenny Macklin, and was eventually funded under national partnerships funding to the Queensland government. The Academy model that was adopted involves a unique partnership between a private organisations, then CYAAA, and the Queensland Education department, whereby the school remains a state school, teachers remain Education Queensland employees, the facilities continue to be owned and managed by the department, but the governance of the school and the determination of the curriculum is the responsibility of an independent Board established under CYAAA. The lynchpin to the arrangement is the appointment of an Executive Principal, which is jointly chosen by the department and CYAAA, and this position mediates the relationship between the Academy and Education Queensland.

Cape York Academy is different from an independent state school, and provides more autonomy to the Board running CYA for the operation and determining the school's curriculum. The model is however not a full charter school model in the American sense. Ownership and responsibility for the facilities still lies with Education Queensland and the employment and industrial conditions of teachers is also the state's responsibility. We believe this is an optimal model because there is no need to interfere with the industrial arrangements of teachers and there is considerable advantage in recruiting teachers to remote communities who rely upon the department's recruitment system. In this way CYA can add onto the base recruitment system of the state without taking on the challenge and risk associated with sourcing teachers for remote postings. We do not think that a full charter model is better than the model that is currently in place. The partnership model is unique and has worked well over the past five years. It strikes the right balance between the state's responsibility to provide facilities and teachers, and CYA's ability to drive a school reform agenda that is autonomous from the department. The partnership is set out in a Memorandum of Understanding with Education Queensland. GGSA is currently working with EQ to formalise the model. One option may be for the Queensland Government to enact enabling provisions to formalise this unique model.

2.2 Archway

The CYA model is based on an archway metaphor. At its apex, between the teacher and the student, lies effective instruction. Effective instruction is the keystone of the whole school archway. Without effective instruction, the school structure does not stand up.

There is a lot of policy discussion about the importance of the teacher-student relationship, and the necessity for quality teachers. We have argued for a long time that this discussion has failed to emphasise clearly enough that the relationship between the teacher and student is first and foremost about effective instruction. The teacher providing effective instruction to the student. Of course there are many other dimensions to their relationship, including pastoral support, friendship and so on, but without effective instruction the teacher-student relationship is useless. Even the kindest teacher with a fully supportive relationship to the student will fail if he or she does not provide that student with effective instruction.

We cannot emphasise enough the importance of effective instruction. Effective instruction starts with the teacher-student relationship and it is also at the core of the teacher's relationship with the entire class. Indeed, effective instruction provides a *logic* for the whole school to work – everything serves effective instruction. It is the central organising principle. All efforts in the school, from the Janitor to the Principal to the frontline teacher, must be aimed at the provision of effective instruction from the teacher to his or her students. The effectiveness of that instruction is a measure of how effective the school is. The quality of the instruction defines the quality of the school and when the logic of effective instruction is at the apex of a school, then you will have a functional and successful school.

Those who have never seen the most disadvantaged children succeed in learning after everyone has long been resigned to chronic underachievement, including educators, system owners, community members and parents, and who have never seen the difference effective instruction can make to such children, will struggle to understand this point. It is easy to hear the message about effective instruction without understanding and taking fully on board its critical and irreplaceable role. It is the be-all-and-end-all of successful school education. Schools involve many other factors and many other relationships and a whole array of related work but our adamant message is that at the centre of it all is the necessity and critical function of effective instruction.

2.3 5Cs

CYA's curriculum model is called the 5Cs:

- Class
- Club
- Culture
- Community
- Childhood

It is important to note that CYA's curriculum approach is not just confined to its Class program comprising mainstream literacy and numeracy. The other dimensions of the curriculum are just as important and CYA strives to allocate resources, time and attention to these other four domains as much as it does to its Class program. In particular the Culture program is a very important part of the CYA model. It is imperative for indigenous children to have access to their cultural language and for this knowledge to be transmitted to them so that it can be maintained for future generations. Therefore the Culture program provides for both cultural knowledge transmission and for learning the traditional languages of their communities.

Club is also an important domain where CYA strives to provide a rounded education. Based on the work of sociologist Annette Lareau, the concept of 'concerted cultivation', whereby middle class parents strive to provide extracurricular opportunities for their children, CYA endeavours to ensure that children in remote communities also have access to rich extra curricular opportunities. We therefore offer music, sport and art programs and aim to ensure that these are of the highest quality possible, often working with external partners such as Swimming Australia, Tennis Australia, Queensland Music Festival and other partners.

The 5C program is very demanding in terms of teaching resources and school time. Additional teachers to teach Club and Culture are crucial. An extended school day has been implemented which enables Class, Club and Culture to be offered in CYA schools. It would not be possible to offer the full 5C program without the extended school day. The period after the formal school day ends at 2.30 pm is not compulsory for the

students and requires parental permission for children to stay for the Club and Culture programs in the afternoon, however CYA students and their families have embraced the concept of the extended school day and attendance levels have been high notwithstanding that it is voluntary.

2.4 DI/EDI

Direct Instruction (**DI**) is the principal instructional mode that CYA uses in its Class program. Despite the clear effectiveness of DI and the considerable evidentiary basis for it, it has been a highly contested and controversial program since its development in the mid-1960s. Since we began using DI in Cape York in 2010, we have come to understand the unique status the program has in education practice and lore. We therefore well and truly understand the observation made by Professor John Hattie in his book *'Visible Learning'* (Routledge, London) in 2009:

“Every year I present lectures to teacher education students and find that they are already indoctrinated with the mantra *'constructivism good, direct instruction bad'*. When I show them the results of these meta-analyses they are stunned, and they often become angry at having been given an agreed set of truths and commandments against Direct Instruction. Too often, what the critics mean by Direct Instruction is didactic teacher-led talking from the front: this should *not* be confused with the very successful 'Direct Instruction' method as first outlined by Adams and Engelmann (1996). Direct Instruction has a bad name for the wrong reasons, especially when it is confused with didactic teaching, as the underlying principles of Direct Instruction place it amongst the most successful outcomes.”

A full description of DI is set out in GGSA's policy paper *'Effective Instruction: The keystone to school reform'*, provided with this submission, and will not be repeated here. Our experience has been similar to Hattie's in that the default position of the average educator in Australia is either highly allergic to DI or quite sceptical at best. It is pretty clear that teacher education in Australia does not dispose graduates towards understanding and appreciating this program.

It is our experience that new graduates are more amenable to trying out DI. Although experienced teachers have also embraced DI mid-way or late in their careers, it is probably correct that experienced teachers are perhaps more likely to be outright

oppositional or passive-aggressive in their response to the introduction of DI in their schools.

The distaste for DI in education circles is more than four decades old, and has been highly ideological. Indeed these past five years of DI in Cape York have escaped the worst of the resistance to DI, even though there has been no shortage of adverse views expressed by various educators and commentators during this period. (Almost all of these opponents have never seen the program in practice and have little or no understanding of its features and just repeat the old four decades long memes that ‘it’s all rote’, ‘it de-professionalises teachers’ and so on).

The relatively less combative and more amenable climate for DI in Australia is largely the consequence of Hattie’s evidence in *Visible Learning*. Hattie’s omnibus examination of what works in education is probably the most influential educational book in modern educational publishing. To say that he has singlehandedly defied the long history of unfair and inaccurate criticism of DI, by providing unequivocal evidence of its effectiveness in lifting student attainment, is no exaggeration. As always, teachers who first adopt DI with their students start with some scepticism and often with some resistance. However, the usual trajectory for the majority of such teachers, is they get persuaded by the performance of their students. No amount of exposure to the scientific evidence and no amount of ideological hectoring will be as effective as teachers witnessing the progress made by their students. Time and time again, we find teachers who tell the story of how their view of DI changed within the first six months of teaching.

This raises the whole question of ‘buy-in’. If you premise the introduction of an effective program on the initial buy-in of teachers, effective programs like DI are likely to be ignored because the starting position and initial reaction is likely to be negative. ‘Buy-in’ to DI in our experience happens when teachers witness the transformation in their students. That is when you get *real* buy-in. This point is very important for system administrators and school leaders to appreciate. Those who seek reform in disadvantaged schools cannot expect teacher faculties and individual teachers to embrace DI prior to the outset of teaching. It is when they have taught children and seen what the program can do for them, and its ingenious effectiveness in teaching children to be literate and numerate, that teacher buy-in occurs.

The second program utilised by CYA is the Explicit Direct Instruction (**EDI**) program developed by John Hollingsworth and Silvia Ybarra¹. There is a vast array of explicit instruction or what is sometimes called ‘small di’ programs. The pedagogical methods utilised by these various programs are very similar. The structure of lessons and the nomenclature of various methods and techniques may be distinct for some programs, but there are fundamental commonalities in the array of programs that fall under the banner of explicit and direct instruction.

The truth is that these explicit and direct instruction programs are *derivatives* of the original DI programs developed by Engelmann and his colleagues since 1964. The pedagogical breakthroughs made by Engelmann et al, were the subject of a formal academic taxonomy by Professor Barak Rosenshine in 1976², and spawned programs such as Hollingsworth and Ybarra’s EDI. That the small di programs are derivatives of the original DI is demonstrated by the fact that the core pedagogical paradigm at the heart of all of these programs is common. What Engelmann called ‘Model, Lead, Test’ is in fact the equivalent of what explicit instruction authors such as the American Anita Archer and the Australian John Fleming call ‘I do, We do, You do’. ‘I do, We do, You do’ is a colloquial representation of what Engelmann originally called Model, Lead, Test.

Siegfried Engelmann’s DI	Anita Archer’s EI	John Fleming’s EI
Model	I do	I do
Lead	We do	We do
Test	You do	You do

2.5 Results

In 2015, Coen had 100 per cent of Year 3 students at or above National Minimum Standard (NMS) in Numeracy, Spelling, and Grammar and Punctuation. Their Year 5 cohort also had 100 per cent of students at or above NMS in Numeracy and Reading.

¹ John Hollingsworth is the president and co-founder of DataWORKS Educational Research. Sylvia Ybarra is the chief researcher and co-founder of DataWORKS Educational Research

² D.C.Berliner and B. Rosenshine, “The acquisition of knowledge in the classroom. Beginning Teacher Evaluation Study,” Far West Lab. for Educational Research and Development, San Francisco, CA, Tech. Rep. IV-1, Feb. 1976.

The total number of student results appearing in the Upper 2 Band (U2B) this year has increased in the Academy, with 27 in 2015, as compared to 18 in 2014 and only 6 in 2011. NAPLAN results from 2009 to 2015 show continuing, steady progress since the Academy began operating.

Key highlights include:

- Increased number of students at national minimum standard
- extended number of students in bands above national minimum standard
- more students appearing in the upper two bands of the test results students are making nearly twice the gain against the national average rate of progress (although starting from a very low base)
- the number of students performing exceptionally well has increased consistently under the Academy using DI.

Although some students are still behind the national average in some areas, the Academy's aggregated results between 2008 – 2015 exceed the national rate of growth in all subjects.

3. Good to Great Schools Australia

Good to Great Schools Australia is a not for profit organisation that supports schools on their improvement journey to transition from Poor to Fair, Fair to Good and Good to Great. We use our school improvement framework to support schools to locate their performance and implement a set of evidence-based programs that enable them to progress to the next stage of their improvement journey. We attend to three important practices identified in high performing school systems: Great Teachers delivering Effective Instruction for Every Child. We use our school reform archway to deliver our comprehensive 5C education program through our 8 Cycles of School Practice. Our team of school improvement experts work with schools around Australia to tailor their education offer to meet the needs of their students, teachers and schools. Our priority focus is effective instruction in underachieving schools who want to transition from Poor to Fair and Fair to Good. Our showcase is our Cape York Academy, which operates school campuses in Aurukun, Coen and Hope Vale.

We have two decades of experience developing and utilising innovative education solutions. Our case for reform is synthesised in our comprehensive policy analysis that is supported by international evidence. It is based on nearly two decades of our research and development.

Our education model is continuously designed, tested and perfected in our schools through real school practice. We invest substantively in design and continuous improvement of education solutions through co-design with students, families, teachers, schools, education systems and education experts.

We harness education leadership from the schools and communities we work in. We seek out parents and education professionals who lead by example and are committed to support improvement.

The Australian education system continues to slip further behind other OECD countries according to annual international tests. Education policy reformers aim their interventions at Fair to Good schools where the majority of students are and they feel they can make the biggest impact. This misses the large minority of students in Poor to Fair schools and results in disadvantaged children struggling right across the school spectrum. Poor to Fair schools are made up of students from low socio-economic, non-English speaking or Indigenous backgrounds. They have a higher proportion of students with special needs and the least experienced teachers.

A child's background should not determine their educational success. The long-term human and fiscal cost of failing to educate our most vulnerable is the equivalent in human capital losses of a permanent national recession. Focusing on the middle will not achieve system-wide national school improvement in Australia. Sustained change also requires a systematic attack on the tail of disadvantage with specific, proven interventions.

4. Literacy for Remote Schools

We provide literacy support to schools around Australia through different partnerships. We support schools and school systems to build and embed great teachers delivering effective instruction to every child.

Our current major project is the Literacy in Remote Schools (**LRS**) project, which commenced in late 2014 and is funded by the Australian Government Department of Education through the Flexible Literacy for Remote Primary Schools Program. We are supporting remote schools across Western Australia, the Northern Territory and Queensland to implement DI or EDI.

In 2016, there will be 39 schools in the program focusing every teacher and every child on effective instruction. This year, GGSA had at least 6 coaching staff in Australian classrooms on any given school day, and trained over 400 teaching personnel. This level of support ensures that schools and teachers can feel confident in their implementation of the program, and assures them they will receive ongoing assistance when required.

Our school network extends across schools in central, western and northern parts of Australia including the Pilbara, Midwest, Kimberley, Arnhem, Barkly, Palmerston, Alice and Cape York regions. Our results are starting to attract interest from schools around Australia wanting to join our network.

5. Boarding Schools

Students from Cape York started attending boarding schools in southern locations from the 1960s. These were usually the most promising students that the various Christian missionaries believed would be able to succeed in secondary school. Access to Church schools run by the Anglicans and Lutherans in Brisbane and other regional centres like Toowoomba or Charters Towers was made available and commenced before the full Abstudy funding was available in 1970s. The generation of educated community leaders, who were a small minority of their generation, were the beneficiaries of this access. With Abstudy in the 1970s, the number of students attending boarding schools from Cape York increased. Most of the students went to church affiliated schools but there were also a few residential facilities attached to state secondary schools such as the Slade School in Warwick in southern Queensland. The outcomes from the seventies and eighties were mixed. Students frequently left schools before Year 10, a good proportion completed their Year 10 studies and lesser numbers went on to complete Year 12. As well as the perennial

problems of homesickness, the principal problem was usually the students' achievement gap with their fellow classmates in these schools. Sport provided an integration opportunity for many students but clearly the achievement gap exacerbated problems of homesickness and the poor quality of primary school education back in Cape York was the cause of these mixed results. Nevertheless, a generation of Cape York parents and grandparents today are the product of boarding school experiences down south. These parents and grandparents therefore frequently value boarding school and want their children and grandchildren to have the same opportunity. It is also the case that the few tertiary qualified people from that period (principally those with teacher qualifications) were educated at southern boarding schools.

In the eighties and nineties, policy favoured the creation of secondary school facilities in most of the larger communities. These programs nominally went to Year 10 but did not offer a proper secondary program. The provisioning of 'secondary' schooling in this period accompanied a decline in the numbers of students attending southern boarding schools. For a number of Brisbane schools that had Cape York students in the seventies and eighties, the numbers dwindled.

It was obvious from the beginning that these 'secondary schools' were a travesty. They were at best teenage child-minding in the communities. Little good came from them and many lives were wasted during the period that they existed. When we began our Cape York Reform Agenda work in 2000, we immediately started campaigning for their closure. Notwithstanding this, it took a long time for these facilities to be closed and indeed in some communities they are still extant. The program at Aurukun only came to an end in 2014 after many years of sustained calls from community leaders for its closure.

There is no way that adequate secondary education can be provided in remote communities. There is a need for alternative programs for disengaged youth and so on, but there should be no pretence that this is the provisioning of secondary education. Secondary education requires scale so that the minimum range of subjects necessary to obtain tertiary entrance scores is offered by teachers who specialise in the teaching of those subjects. This is impossible to achieve with the limited resources and the difficulty of recruiting secondary teachers to remote locations.

5.1 CYP's secondary program

Early on in the pursuit of the Cape York Agenda we sought to replace community-based secondary facilities with access to southern boarding schools. Unlike the 1970s and 1980s, a gap arose between the cost of some of the top-range boarding schools and what Abstudy will fund. This gap can be quite substantial – sometimes more than \$10,000 per annum. Without a scholarship from the school or from another program, kids from Cape York would be unable to attend these schools.

The Macquarie Bank Foundation therefore set up a boarding schools scholarship program with the Cape York Institute which has now been running for 10 years. The program targets our elite achievers and enables children to attend the best schools in the state. Partner schools are targeted for a greater than 85% tertiary transition rate for their students.

The program has been very successful and the retention rate has been high, and the success of the participating students has been very gratifying. The facts and figures for the program (originally called the Higher Expectations Program, now called the Academic Leaders Program) are available from Cape York Partnership.

The initiative encountered some controversy in the beginning as contributing to ‘stolen generations’ but this ridiculous criticism soon faded. We believe our program then helped to pave the way for a vast expansion of secondary boarding school programs (such as the large and successful Australian Indigenous Education Foundation and the equally successful Yalari program) across the country.

Three points to note about our secondary schools strategy:

It was crucial for us to make provision for our ‘elite’ kids who had managed to get through very inadequate primary schooling in their communities. When we say ‘elite’ we mean kids who could cope with secondary schooling and who had a chance of closing the achievement gap with their mainstream counterparts. We couldn’t wait to fix up the home primary schools: we had to get as many of the kids who had a chance out to these secondary schools. Our theory was – which has been proven in practice – that these kids could get caught in the slipstream of high expectation in these schools and succeed.

It does not provide a solution for every student of secondary school age from Cape York. Our answer to this is to fix primary schooling so that more and more students can cope and succeed in secondary schooling. The second part of our answer is to focus on the transition and support of Cape York students who are attending ‘second tier’ boarding

schools: schools that do not have the plus 85% tertiary transition rate, but nevertheless will provide a good option for our students. This is still a work in prospect. The third part of the answer is to provide other vocational and employment pathways for those students who will not succeed in secondary schooling, and are either disengaged or at risk of disengagement. We have an initiative underway in Aurukun involving a pathway for disengaged youth into the Boys from the Bush Program involving placing young people into work in southern locations, discussed later in this submission.

There is a need to fix up regional high schools that should serve indigenous (and non-indigenous) high school students and provide them with qualifications necessary for university entrance. The aim should be no less. However high schools in regions like Cape York (Cooktown High School, Western Cape College and Bamaga High School) rarely provide such an education. Without a strategy aimed at fixing these high schools then the proportion of students whose best option is to attend a regional high school, will remain unserved. We believe this is an important part of the mix of secondary schooling options that should be available.

Connected with the success of both the secondary and tertiary education programs is the importance of the Indigenous Youth Mobility Program (IYMP), which was a policy initiative of the Cape York Institute which was adopted by the Howard Government and now benefits thousands of students all over the country. IYMP is probably one of the most important programs for young people from remote communities: is a great support and incentive to young people and their families, and should be expanded.

6. Issues

There are number of issues we would like to highlight from the outline we have provided here, based on our experience and insights gained over 15 years of working on education reform in Cape York Peninsula.

6.1 School Reform driven by Instructional Reform

This point is lost on too many seeking to reform and improve schools, including countless government policies aimed at school improvement generally, including indigenous schools: school reform cannot only happen with instructional reform. School transformation can only happen with instructional transformation. School improvement will only happen with

instructional improvement. School turnaround will only happen with instructional turnaround.

“It’s the instruction, stupid!” is the policy insight we have gained over the past 15 years.

Schools require a lot of things to work. There are many pieces of the jigsaw to put in place, but without effective instruction at the heart of the school’s program – then everything else is necessary but not sufficient. The one thing that is sufficient is effective instruction.

Instructional reform drives school reform and must be the beginning of all efforts aimed at fixing failing schools. Once you fix instruction, then you have the logic for the whole school, and you are able to attend to the many other pieces of the ‘jigsaw’ that need to be attended to.

Beware any proposal for school reform that does not propose to reform the instruction: it will be just another chimera, a Groundhog Day of ineffective policy. Schools are about teaching, so you have to get the teaching right. Without teaching there can be no learning. And the teaching must be effective in order for learning to be successful.

6.2 Direct Instruction

There is no more effective program for teaching initial reading and numeracy than Direct Instruction. It has a very large research evidence base as reported in John Hattie’s *Visible Learning*. The evidence base for Direct Instruction won’t be rehearsed here but is readily available in Hattie’s book and in our *Effective Instruction – The Keystone to School Reform* publication. There’s an important point to understand here about the evidence base for the effectiveness of DI.

Many people misunderstand whether the results of our Cape York Academy can testify to the efficacy or otherwise of DI. What we are doing with DI in our remote schools has very little bearing on the question of its efficaciousness as an education program. This is because the evidence base for DI is much, much larger than anything we are doing here in Cape York and even in Australia. The evidence base for DI stretches back to the 1960s: there is more than 40 years of research evidence arising from the DI programs. Our performance in Cape York Peninsula with three remote schools will not affect this research base. What must be understood is that DI is *already proven to be effective* from meta-analyses of this evidence base. The only questions that arises in our context is whether we are being successful in the *implementation* of a proven program. That is the evidence that

is pertinent here: are we able to implement DI in remote indigenous schools to take advantage of its proven effectiveness?

So when this parliamentary inquiry asks for evidence about the effectiveness of DI, it is important to understand that the evidence already exists in the research literature on what works in school education. The question that the performance of our schools answer relates to implementation rather than the effectiveness of the program.

The research evidence shows that DI is not just a low performer's program, but works for gifted children as well as in middle class schools. There are advantaged children in America and in some schools in Australia that use DI programs, for example, Broadbeach State School on the Gold Coast utilises DI programs. These are middle class advantaged children who are nevertheless gaining from DI.

DI is particularly effective at initial literacy and numeracy instruction. It assists children to rapidly Learn to Read so that they are in a position to Read to Learn by year three. The program is beneficial to top quartile students and you will get stronger results out of the middle fifty percent, but it is *absolutely essential* for the bottom quartile children. This explanation of the 25/50/25 distribution of literacy capability means that DI *works for all students* but is indispensable for bottom quartile students. Optimally, in 'normal' schools where students do not bring a large deficit to their school, students can complete the DI program in year three and then go on to other programs. Of course in indigenous schools where children entering Prep are many years behind their mainstream peers, and students are already several years behind their grade level, DI can assist in closing the gap but obviously more time is needed for them to reach parity with their mainstream peers. For example, if a program is introduced in a school and a year 5 student is at year 1 reading level, the two years she spends in a DI program can help reduce the gap in the time she has left in primary school but is unlikely to completely close it. The best results are achieved when children go through the DI program from K level.

This raises an important point about the need for students from disadvantaged backgrounds, particularly indigenous communities but disadvantaged communities generally, should have the opportunity to undertake K level DI in their pre-prep year. This is because these children are usually way behind their peers and need to acquire oral language capacity before they start prep. DI has K level programs that are extremely effective with pre-prep students and can bring them up to speed so that when they enter

prep, the gap between themselves and their peers is narrowed and often closed. This means that they can start prep on a more equal footing with other students.

DI is absolutely the right program for remote indigenous schools that are small, that have high teacher turnover, and all of the characteristics that indigenous students have – ESL, low SES, non-literate parents, no books in the home etc. DI works for large schools in urban schools, it works in the middle class, but it is absolutely indispensable for the schools that we are talking about.

6.3 Explicit Direct Instruction

Explicit Direct Instruction, a program developed by John Hollingsworth and Silvia Ybarra, as stated above, is one of a large number of derivative explicit or direct instruction programs. These ‘small di’ programs adopt many of the pedagogical features of DI however the authors of these various programs developed over recent decades have their own spin on the approach. Many of these derivative programs do not recognise their derivation from the old DI, and the originators of DI have reservations and criticisms of these derivative programs. Nevertheless, they all represent a family of pedagogical approaches that share common features, which are quite distinct from most mainstream approaches to school education.

Hollingsworth and Ybarra’s EDI approaches school reform at the ‘lesson level’. That is, they employ all of the features and techniques of best practice lesson preparation and design, and lesson delivery. Their pedagogical approach is well founded in the research evidence, such as John Hattie’s *Visible Learning*. The main difference between EDI and DI is that EDI does not provide a script for the teacher. Rather, EDI provides a framework for teaching teachers to develop effective lesson plans and provides guidance in the delivery of those lessons. Dataworks, the California-based company owned by Hollingsworth and Ybarra, provides training to schools in EDI lesson development and teaching.

In our experience in Cape York, we believe EDI is one of the most impressive of the ‘small di’ programs on the market.

It has therefore been adopted with the Club and Culture program at CYA, and is also the alternative offering with the national LRS project. However, with the national LRS project, GGSA contracted Dataworks to produce a comprehensive set of lesson plans in literacy from P – 6. These lesson plans are based on the Australian Curriculum and they represent a

hugely valuable teaching resource for schools that can be assured that their lessons are compliant with the Australian Curriculum and are pedagogically well designed. This resource is a tremendously useful for teachers who can be assured that the business of translating curriculum standards down to lesson objectives and into lesson plans has been rigorously undertaken by experts at DataWORKS.

EDI is a very good program for larger schools with a more stable teacher force and school leadership. We have found through our experience over the last year with the LRS project that DI is more suitable than EDI for smaller schools that have high teacher turnover and school leadership turnover, and where remote children do not have the same advantages as children in regional centres and urban areas. EDI works best where there is a pool of experienced, stable teachers and where children are not too far behind grade level. In remote schools, EDI has not been as effective as DI with children who are way behind. So in our experience in rolling out the LRS project in 2015, schools such as St Mary Star of the Sea in Carnarvon and Holy Rosary Catholic School in Derby are doing very well with the EDI program. These schools have a minority of indigenous students and do not have the same degree of challenges that small remote schools have. Therefore, good, stable long time teachers flourish with EDI and its comprehensive set of lesson plans, whereas remote schools have struggled with EDI because the students are too far behind their grade levels.

Some of these schools have converted to DI towards the end of 2015 and beginning of 2016 and they have found DI to be much more appropriate to their conditions than EDI. Nevertheless, it is very clear that these schools that are succeeding with EDI are finding it a very effective program and they are very pleased with the lift in instructional quality that the program has provided them. Fair, middle class student schools are finding that EDI can help them lift their performance and they are very pleased with the progress.

6.4 Multilit

Multilit is also a 'small di' explicit or direct instruction program, developed by Professor Kevin Wheldall at the Macquarie University Special Education Centre. Multilit was developed as a remedial intervention program and as explained earlier in this submission, we have used this program successfully in Cape York. Multilit operates a best practice tutorial program at the Exodus Centre in Ashfield, Sydney, and the quality of teaching provided by Multilit can be seen at this centre. Children are bussed in to the tutorial centre

from schools within the vicinity for their morning literacy instruction and they return to their schools afterward.

As a remedial program, Multilit is extremely effective and utilises various DI programs (such as Spelling Mastery). We have no hesitation in endorsing the effectiveness of Multilit. However, the challenge with literacy instruction is how we embed good *instruction in the classrooms* rather than just depending on remedial intervention after the initial instruction has failed. That is why we turned to DI as an initial instructional approach in the classroom so that we did not need remedial intervention.

Whenever Multilit develop a classroom approach to the teaching of literacy, then it can be expected that they will provide a very effective approach to the teaching of literacy instruction in classrooms. They have many years of experience and evidence of the effectiveness of their teaching of reading and Professor Wheldall is one of the leading figures in this field.

6.5 Explicit Instruction

Another version of 'small di' program in Australia is John Fleming's Explicit Instruction. John Fleming's EI model is also derivative of the old DI (even if he is not completely cognisant of that), and he has personally rolled out his program across quite a number of mainstream and remote Australian schools from Western Australia to Queensland. Fleming was lauded for his work at the Bellfield Primary School in Victoria where accounts testify to the improvements he was able to bring about in that school utilising Explicit Instruction. We believe that Fleming along with Professor Wheldall is one of the leading figures in effective instruction in Australia. He currently heads up the Haileybury Institute, which is attached to Haileybury College in Melbourne and is the Deputy Chair of AITSL (Australian Institute for Teaching and School Leadership).

We are not completely familiar with the details of the Fleming model, but it has been implemented in various schools in Cape York and North Queensland generally, and the anecdotal evidence suggests that schools have had some good success with the program. Given that we have not used the Fleming model in CYA or in the LRS project, we mention EI because respected educators and schools in Far North Queensland have testified that they have gained from Fleming's work with them. We would however suggest that like EDI, Explicit Instruction trains teachers and develops school leadership to provide effective

pedagogy in schools. The Fleming model does not use scripts. From what we have learned with EDI in the LRS project, the Fleming model is most appropriate for mainstream or larger schools with relatively stable teacher forces and school leadership. In remote schools where teacher and principal turnover is high and students are way behind in performance, the absence of a comprehensive script as is available with DI, would make EI a less effective approach. As soon as you have developed teachers that are capable of delivering EI, there is the constant prospect of losing them after two or three years. This is a challenge for all remote schools with all programs but EI and EDI are particularly susceptible to these difficulties associated with small schools with high staff turnover.

6.6 Culture and Language

It is inconceivable that successful school education for indigenous students does not include a rigorous culture and language program. Access to ancestral languages and cultural knowledge is *a right* of all indigenous students. It is crucial for indigenous schools but also for mixed schools where there are numbers of indigenous students. CYA therefore dedicates considerable resources, time and attention to providing a high quality culture and language program.

In our experience in Cape York, we found that a serious approach to culture was an effective 'hook' for parental and community engagement. When we began our work in the small community of Coen in the early 2000's, we found that engaging family and community members in cultural projects with their children and grandchildren, was a very effective means of engaging adults in the learning of their children and also in enabling children to see that their families valued their education. A properly resourced culture and language program necessitates an extended school day, because the competition for time and resources between mainstream Western education and cultural education usually means that one suffers at the expense of the other.

The best solution for this competition is to extend the school day so that children can have access to a fully rounded school education. CYA strives to make culture and language a critical part of the 5C program and to fulfil the vision that the children have the opportunity to experience the best of both worlds – their art and culture and the wider global culture and this means that there must be dedicated resources for curriculum development in language and culture. We believe that CYA is pioneering crucial breakthrough ideas in culture and language curriculum and teaching, which will be

applicable to remote indigenous schools grappling with how they integrate ancestral languages and cultural knowledge in their schools.

6.7 Full Service School

CYA was proposed as a Full Service School. In other words, it sought to provide a full suite of learning and student support programs that took care of the health, wellbeing, learning and parental engagement aspects of students' needs. The opportunity to attend to the health and wellbeing of children whilst they are in the school and to create synergies with health and wellbeing providers is clearly available and crucially necessary for remote indigenous children. GGSA is currently in the midst of defining the full service school model and has had some experience in the previous five years with the challenges involved in a comprehensive approach like this. For full service schools to work it requires a holistic approach to student needs and it requires cooperation and coordination with various service providers in supporting student learning and wellbeing.

We believe that full service partnership schools are a distinct category of school provider. The arrangement that CYA has had with Education Queensland over the past five years has demonstrated what a full service partnership school can look like. The model that has been substantially implemented is now being refined and we anticipate discussions with the Queensland Government about formalising its support for our model of school partnership. CYA is not an independent school, it is not a grammar school, it is not an American style or English style charter school and it is not a traditional state school. Rather, it is a partnership school whereby a state school and an independent organisation have come together to deliver a full range of learning and student wellbeing services to disadvantaged indigenous children. We believe that this model has potential application elsewhere in the state of Queensland and throughout Australia. The concept of a partnership school is one which the Commonwealth Government should encourage and support.

6.8 Childhood

The fifth component of the 5C model is childhood. It is the least developed of CYA's 5C model however the one component that has been implemented in CYA is the introduction of DI in pre-prep. This has been a challenge given that pre-prep facilities in two of the communities (Coen and Hope Vale) are not part of the schools. It has been easier to introduce academic learning for pre-prep students at Aurukun because that facility is part

of the school. When other providers are involved, it is often difficult to influence what happens in pre-school settings. This is where the debate between play based learning and academic learning results in some resistance to introducing academic learning programs such as DI to preschool students. It is clear that indigenous students from remote areas are most often way behind in oral language skills. They therefore need to be exposed to oral language programs so that they are not left behind when they start their schooling. DI includes a range of preparatory programs for pre-prep and K-level students. It is clear from the results that CYA has achieved with pre-prep students at Aurukun that the provisioning of an academic program in pre-prep is crucial. The children who undertook the pre-prep DI programs at Aurukun have closed the gap that they would otherwise have, and are therefore ready when they enter their prep year to keep up with the requisite grade levels.

There are many other aspects of the childhood program that still need to be articulated. GGSA is impressed with the work of the Challis school in Perth which serves a disadvantaged community and has a model program for early childhood services provided within the school grounds and which includes an academic program for pre-prep students. The crucial need is to support children from 0-3 and to engage mothers in maternal health programs and engaging mothers in reading to children and other advantageous things that they can do to support their children's learning. GGSA is currently exploring the Abecedarian program which is a form of 'small di' program for early childhood. We believe that this program complements and is a good precursor to DI from K-level onwards.

The model that GGSA is developing for the childhood program would also involve the operation of the Triple P Parenting program within the schools. That is to base the parenting program within the school and to ensure that maximum synergy is achieved between the goals of the parenting program and what the school is striving to achieve. The point is that it is very clear from our experience over the past five years that one of the ways in which the achievement gap can be closed, is that as well as increasing the rate of acceleration of learning, the crucial issue is to start earlier. Unlike middle class children, remote children do not bring with them oral language command when they arrive at school. They therefore need to be provided support at an earlier stage so that they are not left behind.

6.9 Special Needs

We now have assessments of all of the children in CYA attending Aurukun, Hope Vale and Coen schools, and the data is extremely troubling. The number of children in two of the campuses who have special needs is far beyond what occurs in mainstream Queensland and Australian schools. The legacy of a whole range of social problems including prenatal health, foetal alcohol syndrome and exposure to violence and other stresses – is written on these young brains and bodies. This trauma is exhibited in their behaviours and there is little respite from the causal problems within the home and community environments.

Though it can be assumed that other remote indigenous communities will have similar profiles, these childrens' conditions and their diagnoses are difficult to establish, because proper diagnosis is expensive and governments do not want to "look under the rock".

In 2014 GGSA worked with the Royal Flying Doctor Service (**RFDS**) and Dr Jeff Nelson to undertake testing of a sample of children across the Academy. RFDS had funding which enabled these assessments to be undertaken. The results were shocking, disclosing severe degrees of disability, intellectually and physically.

In 2015 this testing was then undertaken with all students, which confirmed the alarming and appalling extent of these disabilities, and the unaddressed special needs.

This data has been submitted to Education Queensland which has now made provision for providing the resources to our schools to address the special needs of these students. The numbers of affected students are high and their needs are large. For the first time these needs will be met.

Based on our experience the question of special needs of students from remote communities is an iceberg, the tip of which we are now only aware of.

As tragic and depressing as this data is, there is very heartening data about the effectiveness of DI with these special needs students. We are able to match students according to their psychometric testing and their progress with DI grade levels: and the data shows that these special needs students are performing above their expected levels given their psychometric results. GGSA is currently undertaking further analysis of this data, in particular to match this student DI progress data with NAPLAN performance. This paper will hopefully be available later this year.

GGSA is developing a strategy on how to best respond to the needs of these students. The response needs to be holistic: encompassing instruction (DI), behaviour management

strategies, social and emotional health strategies, physical wellbeing support and positive parenting support to families so that they are engaged in addressing the special needs of these special students.

7.10 Behaviour management

Behaviour management is a constant and important challenge for our schools in Cape York, as it is for the LRS schools that GGSA is working with. A combination of poor attendance and school readiness, a culture of low expectations of student behaviour, the understandable and expected challenges associated with the behaviour of special needs children – and continuing bad behaviour from adults in the communities – means that behaviour is a massive challenge, that sometimes seems to defy solutions.

And yet with Positive Behavioural Interventions and Supports (*PBIS*) we have made inroads with managing behaviour in our schools. The structured nature of DI and EDI assists greatly with behaviour management, but a school-wide system of behaviour management is essential.

From our experience schools go through periods where they manage to get behaviour under control, and can then go through stretches where schools really struggle. The ability and particular experience or expertise of school personnel – particularly leaders – seems to be a crucial variable. What is clear though is that behaviour management is an ongoing and constant challenge: if an approach is not maintained from day to day and from week to week and term to term, then things can unravel quickly.

These schools are amongst the most challenging of schools in the country, and the resources available to deal with the issues facing these children are often inadequate to the scale of the challenge.

It is very clear from our experience that whenever behaviour is under control, learning occurs. The academic performance of students in Aurukun in 2015 – their rate of acceleration in their learning – was striking because the school had behaviour under control.

The learning return on investment in behaviour is immediate and palpable. Indeed proven. The behaviour management challenge in remote schools requires extra resources compared to mainstream schools.

7.11 Music Program

At the time the CYA model was developed we understood the importance of providing a concerted music program, however our understanding of its importance did not really emerge until we witnessed the importance of our music program to our overall schooling provision. *Music is integral to academic learning*. It provides our students with a dimension to their education that is beneficial in other areas of their learning other than the enjoyment of music itself. It is our view that the music program in our schools provides an important tone for the whole school, even for those students that are not engaged in the music program. It provides a great identity and character to the school. It is obviously a great pleasure and enticement to the students themselves.

We want to underline in this submission how important an optimal music program is to primary school provisioning in remote indigenous schools. Our aim was to ensure that our children had exposure to reading music in their primary education and to undertake instrumental music so that the pursuit of music in secondary school was not closed off. Children with musical talents and predilections should not be precluded from pursuing them in secondary and further education simply because they've not received the opportunity in their primary education. That is why we attach so much importance to our partnership with Queensland Music Festival, under the directorship of James Morrison, and the role that the school band plays in the life of our schools is a real cornerstone for our academy. We cannot understate its crucial importance.

7.12 Scaling school reform

Professor John Hattie says that the Holy Grail of education is how to successfully scale up reforms. There are many examples of education reform producing success in one or a handful of schools, but very few examples of these successes being turned into larger scale. Many people develop good hamburger or ice cream breakthroughs but the business of turning these breakthroughs into McDonald's or Mövenpick is still elusive in school education. The formula for successful scaling up of school reforms is not entirely clear.

The progress after one year of scaling up the kind of education program developed within CYA to other remote indigenous schools through the LRS program is however promising – but it is only early days. We believe that the implementation models that GGSA has developed and are constantly refining are tackling this challenge of scaling school reform.

Schools, teachers and system leaders are expressing their appreciation for the high level of support that they receive from GGSA, particularly from its frontline staff, the coaches and implementation managers. GGSA is dedicated to innovation in this area and to finding solutions to large scale school implementation, and embedding the gains that are made through instructional interventions so that schools are able to sustain their reforms over the long term. Maintaining long term relationships with system owners and other partners is key, as is the necessity for school improvement agendas to survive changes in government because the timeframes needed to build and stabilise sustainable school reform extend way beyond the life cycle of governments.

7. Recommendations

7.1 Offer 5C Academy Model to other regions

We recommend the Commonwealth Government work with indigenous communities and relevant school system owners to establish ‘academies’ or ‘colleges’ akin to the Cape York Academy, which offer the full 5 C suite of programs (Class, Club, Culture, Community and Childhood). Such academies could be established around appropriate school clusters in relevant regions.

7.2 Continue to scale LRS into regional and urban schools

We recommend the Commonwealth Government continue to scale the LRS program and offer it into the remaining remote indigenous schools, and also in regional and urban schools serving disadvantaged students generally, including non-indigenous students.

7.3 Add Mathematics to Literacy

We recommend that future iterations of the LRS program include numeracy along with literacy support.

7.4 Develop Full Service Partnership Schools for Disadvantaged Schools

We recommend the Commonwealth Government work with system owners and indigenous communities to develop the concept of Full Service Partnership Schools for

disadvantaged schools, based on the CYA model. This will necessitate whole of government funding solutions for the full suite of student welfare, health and other services that form the Full Service partnership model.

7.5 The Importance of Music Programs

We recommend the Commonwealth Government support music programs as an integral component of school reforms, including opportunities for instrumental music programs. Music is such a critical and important component of a successful school, we cannot emphasise enough the importance of making provision for music programs, including specialist music teachers on staff. We recommend the Commonwealth Government explore how an organisation such as the James Morrison Foundation can support schools with their music programs.

7.6 Sustaining a School Improvement Agenda through a Remote Schools Council

We recommend the Commonwealth Government consider how the school improvement agenda that is being initiated under the LRS program can be scaled and sustained and institutionalised in remote schools, so that the gains are preserved – and they don't face a constant cycle of improvement and decline necessitating further investment and interventions. This means consistency in policies and strategies over the long term, notwithstanding changes in government at the Commonwealth and State/Territory levels: at least 10 years. This challenge may well be best met if the Commonwealth Government obtained the agreement of relevant system owning governments to establish a Remote Schools Council to oversight policy, strategy and funding of remote schools – including representation from all jurisdictions and relevant organisations – so that a 10-year school improvement program can be driven and overseen in the remote school 'sub-system' across Australia (comprising approximately 250 schools).

7.7 Funding to follow Reforms

We recommend the Commonwealth Government premise funding on systems and schools adopting proven school improvement reforms. Increased funding is crucial, but investment needs to be contingent on genuine reform, with effective instruction being imperative. Australia has gone through a period over the past two decades of increased investment in

education without the results to show for it. This does not mean funding is not necessary, rather funding needs to follow genuine school reforms.

7.8 Keep up the momentum of Boarding Schools

We recommend the Commonwealth Government continue to do everything in its capacity to support access to boarding schools for indigenous students. This is an area of indigenous education that is experiencing success and growth, with more and more mainstream schools offering places for indigenous students, and scholarship programs are continuing to build their capabilities to support indigenous students.

7.9 Transforming Regional Secondary Schools

We recommend the Commonwealth Government invest in an innovation project aimed at transforming regional high schools servicing indigenous and rural/regional non-indigenous students into higher-performing schools – utilising instructional reforms and innovative solutions to recruiting and developing high quality teachers. Regional high schools (which the majority of students in remote communities will attend for however long and with usually poor outcomes) need to be transformed: this will require innovation. Boarding schools in the mainstream will only cater to a minority of remote and regional students – the majority will attend regional high schools. They need to be capable of providing a genuine secondary school education of the highest standard possible. We recommend the Commonwealth Government fund such an innovation model through a 2-3 school trial.

7.10 STEM

We recommend the Commonwealth Government fund the innovation and trial of an approach aimed at enabling indigenous students from remote communities being able to pursue educational pathways in Science, Technology, Engineering and Mathematics. Indigenous students are poorly represented in secondary and tertiary STEM subjects and qualifications, and the hypothesis underpinning this recommendation is that a suite of ideas attached to a specific focus on dramatically improving science and mathematics learning in primary schools, leading to ‘pathways’ for students with particular interests and aptitudes – could provide a model for increasing indigenous students ending up with STEM qualifications and entering STEM-related fields in later studies and employment. Again a 2-3 school trial is recommended to develop and implement such an innovation.