

# Celebrating success:

Numeracy in remote Indigenous contexts



# Interim Report

## Remote Numeracy Project

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This document is the interim report for the Australian Research Council (DP130103585) funded project: *Numeracy Success in remote Indigenous contexts*. It presents the emerging findings from the project as it passes its mid-way point. The intent of the report is to provide interim findings to those agencies, systems and schools who have participated in the study. A website has been established at the University of Canberra where the project outputs are freely available to schools, systems and the wider public.

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## **Thanks**

The team expresses its gratitude to the schools that have generously allowed us access to their classrooms and shared their practice. We hope that the case studies and the publications arising from the project do justice to the great work being undertaken.

# Index

<b>Executive Summary .....</b>	<b>1</b>
<b>Key findings.....</b>	<b>4</b>
<b>Background .....</b>	<b>7</b>
Language and Culture .....	9
Programs for Indigenous Learners .....	10
Policy Context.....	11
Federal Policies.....	13
Staffing and Professional Development.....	15
<b>Method .....</b>	<b>16</b>
School Selection .....	17
Consistency within Site Visits .....	19
Field Visits.....	19
Analysis.....	20
<b>What Builds Success in Remote Numeracy? .....</b>	<b>22</b>
<b>Envisioned Practices .....</b>	<b>25</b>
Philosophy of the Leaders and Schools.....	26
Needs of the School and Community.....	27
Culture and Shame .....	27
Curriculum Leadership: Leading from the Middle .....	28
Summary .....	28
<b>Enabling Practices.....</b>	<b>29</b>
Employment and Development of Community Members .....	29
Professional Support for Teachers.....	30
Middle Models of Leadership.....	31
Transitioning.....	32
Summary .....	32

<b>Enacted Practices.....</b>	<b>33</b>
Productive Pedagogies .....	33
Differentiation and Class Size.....	34
Data-Driven Pedagogy.....	36
Explicit and Consistent Lesson Structures.....	37
Language-Based Mathematics .....	39
High Expectations.....	40
Mathematics, Mathematics, Mathematics.....	40
Culturally-Responsive Pedagogy .....	41
Group Work.....	42
Early Years .....	42
Attendance.....	43
Summary .....	43
<b>Summary.....</b>	<b>45</b>
<b>Terms and Definitions.....</b>	<b>46</b>
<b>Publications Arising from the Project .....</b>	<b>48</b>
<b>References .....</b>	<b>49</b>



# Executive Summary

This report is based on the emerging findings from the “Success in remote indigenous communities project. This project was funded through the Australian Research Council scheme (DP130103585). The study sought to investigate, document and celebrate the numeracy successes of schools working in remote communities. The project focuses on the practices of those schools. The case study aspect of the project is not evaluative since a fundamental premise is to document what, and how, practices are contributing to the success of Indigenous learners in remote contexts.

The project has as a fundamental premise that there is great work being undertaken in remote schools and that this work should be documented and shared with others. This report is written at the approximate half-way point in the project. As such, I have opted to not include any substantive quantitative analysis as there may be differences emerging as we undertaken the remaining case studies.

## Method

The project is undertaking 32 case studies as submitted to the funding agency. There are likely to be more than this in the final report due to the cost savings through a volunteer research assistant to assist in the collection of data. The case studies are ethnographic in form, and are developed through site visits to each school. Data are collected through interviews with members of the leadership team, teachers, and local workers at the school; observations of classrooms; and collection of school artefacts. Collectively these are used to develop individual case studies for each site. A positive report is generated in consultation with the school, and once approved, is uploaded to a website for sharing (and celebrating) the successes of the schools. The Remote Numeracy website is hosted at the University of Canberra<sup>1</sup>.

A first run of the meta-analysis across the schools was undertaken for this report. Trends across the data were undertaken through the application of a software package – NVivo – into which all interviews were coded and analysed using grounded theory. This has enabled the identification of key trends across the data set. At the time of writing this report, not all data has been entered in NVivo so the report is based on the 20 schools currently entered. A further analysis will be undertaken via Leximancer and some statistical analysis will be undertaken on quantitative data that has been collected. This report is intentionally qualitative since the full data collection has not been completed. Any statistical analysis could be different from this point in time as more schools are included.

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<sup>1</sup> <http://www.canberra.edu.au/research/faculty-research-centres/stem-education-research-centre/research-projects/remote-numeracy>

## Schools

Permissions were gained from state, government and Catholic sectors in Queensland, Western Australia, New South Wales and South Australia. The Northern Territory DET denied access to government schools after three separate applications (2012, 2013 and 2014). There was only one NT Catholic school that met the criteria for inclusion but elected not to participate in the study. As such, NT schools are noticeably absent from this study. This is not to say that there is no good practice in NT, as quite clearly there is. Rather, it is a factor of the regulatory requirements to access schools through permission from the DET. As such, many of the NT schools that would qualify for inclusion in the study are noticeably absent. The only NT schools that are included are Independent schools. At the time of writing this report, the following distribution of schools was included in the study. More schools are to be sought that will balance the distribution of schools. These schools, along with those confirmed to participate in the study will be included in the final report.

	Government	Catholic	Independent	Confirmed (Term 4 2015)	To be sought	Total
WA	6	3	6	4		19
QLD	4				4	8
SA	2			2	1	5
NSW	3				2	5
NT			1		1	2
Total	15	3	7	6	8	39

*Table 1: Distribution of Schools as of August 2015*

The schools include the range of schools that could be expected across Australia – including primary, secondary, schools to year 10, schools to Year 12, Vet schools, and boarding schools. The schools also range in size from two-teacher through to schools with 50 teaching staff. Some of the schools are located in the community, while others (such as boarding) are outside the immediate community. Some schools serve the community in which they are located, while others draw students from surrounding communities. Some schools are single campus, while others have been multi-campus. One case study is based on a system-level approach so spans many schools within that system. The method has endeavoured to capture the diversity of schools operating across Australia.

Two sites were visited and data collected but at the completion of the site visit, there was no coherent story to be written so no case study was developed.

## Analysis

Two levels of analysis have been undertaken in this study. At the first level is the ethnographic case study approach. Each school has had a case study produced of the school. These draw on the key themes of the school following the site visits. The case studies are negotiated with the school so that the stories are validated by the school and are seen to be a fair representation of the school. The stories are published on the project website.

The second level of analysis is on-going and will be further analysed post this report as more schools are included in the study. All interview data are entered into a qualitative data base (NVivo) and coded using a grounded theory approach. This enables trends across the data sets to be identified.

Analysis has been undertaken using quantitative data of the lesson observations to date, and of the national NAPLAN data base.

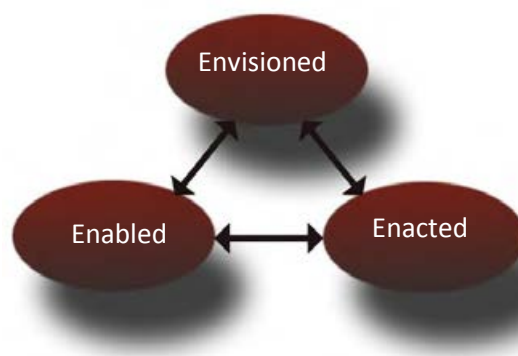




# Key findings

All findings reported here must be read in context that these are only the preliminary findings of some aspects of the project. More schools will be included in the study and may result in other findings to emerge.

Unsurprisingly, there is no unifying approach across the states, or schools. However, there are some features that are appearing in many cases that are noteworthy. While there are examples of practices that would appear to be diametrically opposed such as problem based/investigative group work with the highly structured worksheets of direct instruction, there is a unifying philosophy behind the teachers' intent with the adoption of these practices. First is that they sought to identify the entry level of the students (through assessment for learning practices) and then to develop targeted strategies to meet the needs of the individual students (differentiation).



*Figure 1: Model of Practices*

To make sense of the multiple levels of practice observed across the study, three levels are used – envisioned, enabled and enacted. Schools need to have strong and well-articulated vision for the school, they then put practices in place to enable the vision to be enacted by the staff at the school. Different schools had different emphasis in their case studies. Each of these levels of analysis and examples are provided.

## Envisioned Practices

Many of the schools in the study were very clear about the culture of the school that they sought to develop (or had developed and sought to maintain, and sustain beyond their time at the school), such as:

- Articulate and lead the rollout of a school-wide approach to the desired culture and vision for the school;
- A supportive leadership team to work with staff to enable the effective management of the school culture – both in terms of the culture of the school, and the mathematics learning culture;
- Working relationships with community to share the visions of both the community and the school;
- Change is slow if it is to be effective. Being prepared to evolve a positive culture over an extended period of time and to ensure that the culture is embedded so that it endures changes in staff is critical. Communities and families are often change-weary of leaders coming to make their personal mark for personal gain, rather than for the gains of students and community;
- Sharing vision and working with staff and community is an important factor for success; and
- Middle leadership was a strong theme emerging from the school data – this level of leadership mediates the vision of the school, and supports teachers to enact the vision of the school.



## Enabling Practices

To enable staff and students to meet the goals of the school and thrive in the classrooms, schools have employed a wide range of practices to enable teachers to be able to enact the vision of the schools, including:

- Employment of quality local staff to work alongside teachers. Investment of time and resources were evident of local people who often took a strong role in the classroom and were an invaluable resource within the school;
- Quality professional learning for teachers – most of the schools were staffed by new-to-teaching, and often in their first remote position so considerable support was made available to induct into remote education, and to provide on-going support in their development of teachers of numeracy/mathematics; and
- Numeracy Coaches were a feature at many of the schools. These people's role varied depending on the context and needs of the teachers but included sharing the vision of the school and supporting teachers to enact the vision; providing in-class support for teachers from planning lessons to providing feedback (middle leadership).

## Enacted Practices

At the level of the classroom, there was an extensive range of quality practices that were articulated and observed. These included:

- Being explicit about the intent of learning, how lessons will be organised and what is expected of the students;
- Differentiating learning to enable identification of students learning needs through assessment for learning practices and then to build quality learning experiences that meets and extends the needs of each learner;
- Recognising language as a key variable in learning, providing appropriate scaffolding in language (home and SAE) to build bridges between the home and school, and provide entry into school mathematics;
- High expectations – of both students and staff – across social and mathematical norms. Students should be provided with age-appropriate learning outcomes (e.g. algebra for secondary students) and then quality teaching practices to scaffold learners to achieve those learning intents;
- Focus on mathematics – mathematics was a priority for learning. The mathematics that was being taught was age-appropriate so that students were being exposed to levels of mathematics that could be expected in regional settings. It became the task of the teachers to provide appropriate scaffolding for students to enable them to reach these levels of learning. High mathematical expectations were reinforced;

- Culturally responsive pedagogy was evident where many strategies were developed to cater for culture of the students. Most obvious were strategies used to build language (of mathematics and the home language as well); and to have strategies that were cognisant of issues of “shame” within the classroom. There has only been one class to date that incorporated the more overt aspects of culture (e.g. art) but other teachers have sought to draw on the everyday activities that the students undertake (e.g. fishing, trips to town);
- Creating a sense of numeracy for life. Most communities had limited numeracy practices synonymous with urban living. Teachers have developed many strategies to create opportunities for students to see the purpose of mathematics/numeracy in their lives; and
- Pacing of lessons, or parts of lessons, was often quick so as to engage learners, and prepare them emotionally as well as mathematically for the mathematics lessons. Using a quick pace engaged the learners. Humour was often part of the lesson as well, again to engage learners in a non-threatening manner.



# Background

The achievement levels of students on wide-scale tests, such as NAPLAN, TIMMS or PISA, are seen to reflect the quality of the nation's education systems. It is recognised that some factors correlate with achievement on these tests – gender, social background, geographical location, cultural background, language background, and disabilities. The most “at risk” students – those most likely to perform poorly – on these tests are those who may have multiple of these markers. For Indigenous students, living in poverty and living in geographically isolated locations, and often having hearing difficulties, the potential for poor performance is compounded. This study focuses on schools working with this cohort of students, and who have been able to demonstrate ‘success’ in the teaching of mathematics/numeracy.

## Mathematical Success for Indigenous Australians

The data for success in mathematics (or numeracy) for Indigenous Australians is complicated and intersects with a range of variables. Students who live in urban areas, such as major cities or towns are likely to succeed in similar rates as their urban counterparts. There are many examples of Indigenous students performing better than their non-Indigenous peers. However, there is quite a marked difference between the urban contexts and the further schools are from urban centres. The most profound differences are with students who live in remote and very remote areas. It is noteworthy that the Northern Territory “is a staggering fifty percentage points or more in reading, writing and numeracy across all Year levels currently tested” (Ford, 2012, p.80), but there are many compounding variables impacting on NT education provision (Silburn, McKenzie, Guthridge, Li, & Li, 2014), least of which is that approximately 50% of remote Australian schools are found in the NT and they support 80% Indigenous learners, the figures are somewhat skewed. Other issues also compound these results. For example, the mobility and transience of students (Doyle & Prout, 2012) impacts on both capacity for learning and also monitoring of students. This is a significant issue in remote areas, and impacts considerably on the Northern Territory remote education provision. Similarly, the cultural and language diversity in the NT and the sheer geographical isolation of most of the state, impacts on performance.



## High Stakes Testing: Identifying Gaps in Performance

There is broad recognition within the policy and research communities that there are significant differences in performance for Indigenous learners in remote and very remote contexts when compared with the peers in urban and regional settings. Geographical location impacts on mathematics learning across a range of variables (Panizzon, 2015) with students living away from major cities being the most affected in terms of performance. When this is considered in concert with issues of Indigeneity, language and culture, there are even more marked differences.

There are many measures of numeracy performance and the marked differences between Indigenous and non-Indigenous students, keeping in mind that the gap widens as the remoteness of location increases. The 2012 Pisa results for 15 years students shows that Indigenous Australians are 2.5 years behind their non-Indigenous peers in mathematical literacy. In 2008, ACARA (Australian Curriculum Assessment and Reporting Authority (ACARA), 2008) reported that for Year 3 students, 81.6% of Indigenous students met the minimum standard in numeracy while 96.6% of non-Indigenous students met the same numeracy standard. This dropped considerably by Year 9 where 65.7% of Indigenous students met the numeracy benchmark, while 92% of non-Indigenous students met the same benchmark. COAG (2013) reported that in the period from 2008-2012 that the numeracy skills of Indigenous students in Years 3 and 7 had declined and that there were no significant change in numeracy for Years 5 and 9.

There are many complex and intertwining reasons for these marked differences (Riddle & Fogarty, 2015), including language (Dixon & Angelo, 2014), health (Guthridge et al., 201) and attendance (Hancock, Shepherd, Lawrence, & Zubrick, 2013). Guether (2015) proposes a different standpoint to argue that the wide-scale failure of remote and very remote schools could be seen to be a response to the difference in value systems between those who attend the schools and the system imposing the test items on the students.



The high stakes nature of NAPLAN testing has seen many schools and teachers moving into approaches that teach-to-the-test so as to improve test scores, thus taking away from the significant learning potential of other teaching (Thompson & Harbaugh, 2013). Others such as Klenowski (2014) have argued for a much fairer means of assessing Indigenous learners and learning, including the use of both formative and summative assessment.

# Language and Culture

For many students and families living in remote and very remote areas, their language and cultures remain connected to their lives. Many remote communities still have many traditional practices, and the community members speak their home language, and/or a Creole from the region. The values of the community may be quite different from those of the school, and so may not resonate with expectations of families. Similarly, for many remote students, coming to school, and mathematics, means learning in a language (Standard Australian English) that is not the language of the home. To this end, there is growing recognition of the need for approaches that recognise the cultural and linguistic background of students and create ways of building learning environments and experiences that meet the needs of the learning while ensuring that they are able to access dominant forms of knowledge – such as literacy and numeracy.

## Culturally Responsive Teaching

There are numerous terms used to refer to ways in which pedagogy and curriculum (as well as assessment) can be created so that learners' backgrounds are incorporated into the teaching practices. Two key ways that this can be achieved is through the recognition of the language and cultural norms of the learners and building scaffolds to support the transition into the school knowledge system. For example, recognising that the home language is quite different from that of the mathematics requires the teacher to explicitly teach the metalanguage of mathematics. Simple strategies such as creating resources that show the many terms that can be used for the operations can reinforce to students that the same process can be signified by different words.

Another approach to culturally-responsive teaching is to build activities around the knowledge systems and home experiences of the learners. This can be cultural activities such as how maps of the land are represented – in the home culture and in school culture (Chambers & Watson, 1989). Another approach is to show how the (qualitative) calendar in the home culture would look as compared with the (quantified) calendar that is valued in the mathematics curriculum (Harris, 1990). The activities undertaken by the students in their out-of-school contexts (such as fishing, or sport) can also be a pathway into school mathematics.





# Programs for Indigenous Learners

The Federal and State governments have allocated significant funds for programs for Indigenous learners in mathematics. Three of the more mathematically-focused programs funded from Federal Funding include Quick Smart, Yumi Deadly Maths and RoleM. The programs have different foci/ emphases and had been implemented in some of the schools in this study, and equally, had been dropped by other schools for failing to meet their needs. More generic programs have also been taken up by the State and Federal Governments. The Federal Government has also provided \$25million dollars to the Cape York Academy (QLD) for the



implementation of Direct Instruction in their three campuses. The Stronger Smarter Institute has worked with many of the schools in this study in terms of leadership development. Similarly, the States are implementing programs targeting indigenous learners – such as Explicit Instruction (Archer & Hughes, 2011) in the far North Queensland region, or in Western Australia, the government developed two very comprehensive (research-based) programs – Getting It Right and First Steps in maths (Department of Education WA, 2013). Other schools have purchased commercial programs, or sought the services of consultants to work with the schools to develop school-based approaches suitable for their needs. It is not the purpose of this report to provide feedback on these programs, but to acknowledge that there are programs being used in schools.



# Policy Context

The Closing the Gap policy initiated under the Rudd government in 2008 and continued under the Abbott government has shown no improvement in reading and numeracy since 2008 (Australian Government, 2015) despite considerable investment of government money. In 2014, the Federal government allocated a further \$56.4 million to try to halve the gap in literacy and numeracy. Numerous funding arrangements have been made to target the gap in performance in literacy and numeracy. These have varied under the two successive governments and funding arrangements vary from state-to-state. Biddle (2014) undertook an analysis of school performance of Indigenous and non-Indigenous students and found, with all things being equal, that 20% of the performance gap can be explained through the poor attendance of Indigenous students. There is now a strong focus from both state and federal governments to encourage attendance. A recent report from Queensland Department of Education, for example, highlights the regional distribution of attendance to show that schools in remote (and rural) areas have higher proportions of students whose attendance is below the desired rate of 85%. In Far North Queensland, there were more than 22.4% of students attending school less than 85% of time (Department for Education Training and Employment, 2013).

There are many policies and strategies across the states and territories that have been developed to support the attendance, and learning, of Indigenous students. The following summary is not meant to provide a comprehensive analysis of all policy documents, but rather to provide a context for what is happening in education in those states in which the study is based.

## Connected School Communities - NSW

The Connected Communities strategy (Department of Education, 2014) is an initiative in New South Wales. Commencing in 2013, fifteen schools were selected to be part of the initiative. The schools work in partnership with leaders from the community in which the school is located to coordinate activities to improve the learning outcomes for the Aboriginal students. The schools act as community hub for the various services within the broader community and then develop and tailor education to meet the needs of those communities. There is an emphasis on community and school decision making which is a joint enterprise. The school has a number of staff appointed through the funding arrangements, including a key person to act as a conduit between the school and the community. The school reference group is responsible for setting the vision and direction of the school, defining local goals, identifying student needs, curriculum development, resources, community input, planning and inter-agency support. Schools also participate in language maintenance through Aboriginal Language and Culture nests and enhanced staff development through metropolitan teacher exchanges.

## Good to Great Schools - Qld

Many of the schools in Queensland have noted their links to the Good-to-Great Schools initiative. The Good to Great Schools Australia (GGSA) is a not-for-profit organisation that “supports schools to transition from Poor to Fair, Fair to Good and Good to Great”. The organisation promotes the use of “Explicit Direct Instruction” model of pedagogy. It promotes an education program and an effective teaching program. The GGSA 5C comprehensive education program incorporates four distinct, but related, learning domains of Childhood, Class, Club and Culture, which are integrated into the curriculum. These are complemented by the Community domain which focuses on engaging parents and families to support student attendance, school readiness and wellbeing. This program is showcased in the Cape York Academy schools of Aurukun, Coen and Hope Vale. The Effective Instruction program incorporates two strategies, Direct Instruction and Explicit Direct Instruction to assist teachers respond to the unique demands of remote Australian Schools.

## Empowering Local Schools – SA

The Empowering Local Schools Program (Association of Independent Schools South Australia, 2012) is an initiative of the federal government and provides funding for independent schools in South Australia to self-manage and respond to local needs. The focus of the ELS strategy is to deliver greater local decision making to schools; to further enhance local governance and management; to demonstrate that increased local decision making will contribute to improved student outcomes and recognise diversity in current levels of autonomy. In particular South Australia focuses on enhancing and improving current decision making across governing bodies and management at the school level within participating schools, building organisational capacity and establishing an innovative culture based on ongoing improvement at the school level. Participating schools nominate their focus areas based on a preliminary review/needs assessment. Each school application is addressed within the following five areas of the framework: 1. Governance: 2. Business Administration and restructuring: 3. Development of Local Partnerships and Community Engagement. 4. Workforce Planning: 5. Leadership and Management. There is also support for professional development of teachers.

# Federal Policies

## Closing the Gap

Closing the Gap (Australian Government, 2015b) is a long-term framework that acknowledges that improving opportunities for Indigenous Australians requires intensive and sustained effort from all levels of government, as well as the private and not-for-profit sectors, communities and individuals. Established under the Rudd (Labor) government and continued under the Abbott (Liberal) government, the policy seeks to redress the substantive gaps between Indigenous and non-Indigenous Australians in the areas of education, health and housing. As part of this framework the Aboriginal and Torres Strait Islander Education Action Plan commits governments to a unified approach to closing the gap in education outcomes between Indigenous and non-Indigenous students. It brings together mainstream education reforms, under COAG's National Education Agreement, with a range of actions specific to improving outcomes for Indigenous students. The States and Territories have identified 900 Focus Schools under the Action Plan (Council of Australian Governments (COAG), n.d.), where actions will make the greatest difference in progressing the Closing the Gap targets for education. A major initiative arising from this strategy was the National Partnerships agreement. This was in place at the commencement of the study but phased out during data collection (2014) thus making for significant changes in many of the schools.

Creating positive learning environments and engaging Indigenous parents have been identified as a significant opportunity for schools to contribute to closing the gap on the educational disadvantage (Ockenden, 2014). Literature indicates that school-based factors play a significant role in developing an engaging learning environment for Indigenous students. In turn, this can have a significant effect on their attendance and educational outcomes. The literature and case studies point to a handful of crucial factors that schools can incorporate to create a school culture where Indigenous students feel welcome, safe and valued, fostering an environment where Indigenous students want to learn. These factors include strong and effective school leadership, creating a positive school culture that encourages a positive sense of Indigenous student identity, and providing teachers with the skills and knowledge to effectively engage and develop relationships with Indigenous students and their families.



## Attendance in Schools: Remote Attendance Strategy

The Remote School Attendance Strategy (Department of Prime Minister and Cabinet, n.d.) arises from the Closing the Gap initiative, recognising that attendance is the precursor to achievement. The strategy focuses on supporting school attendance officers working with schools, families, parents, and community organisations to ensure all children go to school every day. The strategy started in Term 1, 2014, and is being implemented in partnership with communities and schools in locations in New South Wales, South Australia, Western Australia, Queensland and the Northern Territory. It is designed to be driven by the community to suit local needs. The Remote School Attendance Strategy works with local providers to employ school attendance supervisors and school attendance officers to help students get to school.

School attendance supervisors and officers may have different names in different places, but together they make up the school attendance teams in each community. These teams work with schools to help parents and families make sure students have what they need to go to school each day. Team members are local people from the community. They may be family or caregivers who want to help children in the community get to school. School attendance teams work closely with teachers, parents and the community to develop a community plan to identify ways to ensure all children in the community go to school every day.



# Staffing and Professional Development

One of the biggest challenges in remote education provision is the attraction and retention of quality staff in remote areas (Roberts, 2005). There are a multitude of factors that impact on the staffing in remote schools (Kelly & Fogarty, 2015). Some of these include the readiness of graduates to teach in schools, but equally their readiness for life in schools and community (White & Kline, 2012). While issues of community isolation feature strongly in teachers' evaluations of the challenges of working remotely, issues of instructional and curricular matters are also issues for teachers, as are issues of organisational matters (Handal, Watson, Petocz, & Maher, 2013).

With many/most of the teachers in remote schools being recent graduates – nationally and internationally (Gagnon & Mattingly, 2012), they are often in their first appointment since graduation. There is a concern of the capacity for preservice teacher education to adequately prepare graduates for the demands of remote teaching (Kline & Walker-Gibbs, 2015). To help support preservice teachers into rural and remote teacher employment, some universities offer placements in rural and remote settings during initial teacher training to induct urban preservice teachers into the nuances of remote/rural teaching (Adie & Barton, 2012; Beutel, Adie, & Hudson, 2011; Kline, White, & Lock, 2013). This allows preservice teachers to gain a practical understanding of working and living in remote contexts and enable them to make informed decisions as to their suitability for these contexts.

In some states, the transience of teachers is quite an issue (Helmer, Harper, Lea, Wolgemuth, & Chalkiti, 2013). In the Northern Territory, for example, there was a period where the average time of teacher in schools could be measured in months as opposed to years (Hall, 2012). Retention of teachers, particularly in remote settings, has been found to be problematic, for many complex reasons including access to professional development (Buchanan, 2012), and not providing teachers with support at both the school and system levels (Sullivan & Johnson, 2012).



## Teacher Quality

Teacher quality and retention of staff in remote schools is a notable issue in staffing (Brasche & Harrington, 2012). Teachers are often offered considerable incentives to teach in remote settings (Handal et al., 2013), and often with a short (2-3 year) contract after which they are able to apply for positions in urban or regional settings with priority over others seeking employment in these regions.

There are often widely disparate views and expectations of teachers who elect to teach remote. In one study of a cluster of remote schools (Jorgensen, Grootenboer, & Niesche, 2013), it was found that of the 32 teachers, their motivations for teaching remote included seeking adventure, being able to live in a remote setting, or unable to secure a position elsewhere. Only one teacher indicated an equity motivation for teaching in a remote context.

The tyranny of distance limits the possibilities for professional learning opportunities in remote schools. Distances to be travelled, time away from school, and the lack of substitute teachers to replace teachers undertaking professional learning curtail targeted professional learning. Some innovations in curriculum development have been sourced through on-line formats and the provision of professional learning through targeted programs (Warren, Quine, & DeVries, 2012) or through face-to-face professional learning (Jacob & McConney, 2013) where the project leaders offer programs to schools that are supplemented by funds from external agencies. As noted earlier, accessing professional learning and support as an early career teacher is critical in the retention of teachers in remote settings.

## Summary

Collectively this brief review has provided some insights into the current state of affairs in terms of issues that are part of the provision of education in remote Indigenous contexts. The issues for teaching in remote contexts are complex, and while Aboriginal activists, such as Noel Pearson, advocate for quality teachers in remote settings, there are many factors that need to be considered, including curriculum, pedagogy, assessment, teacher preparation – both preservice and inservice, culturally-responsive pedagogy, leadership and others that have been noted in the review. Many of these issues have been found to be integral to the work of the schools in this study, other than preservice teacher education. Preservice teacher education was outside the parameters of this study other than to be noted an issue that schools reported was not undertaken well in terms of the preparation of teachers for remote education.



# Method

## School Selection

The selection of schools was based on two approaches. In the first approach, a comprehensive search of the *MySchool* website was undertaken and was on-going over the duration of the project. Schools were identified as being remote/very remote, having a significant (usually above 80%) Indigenous students, and to have scored better than similar schools (as represented by green or dark green) over a number of years. Schools that scored green in one year did not qualify for inclusion. The NAPLAN provided an initial indication of 'success' as it is the only national testing scheme through which schools can be compared. It is recognised that there are limitations to the process due to the limitations of the test itself. Schools were also included based on recommendation – of other schools or regional directors. Schools were also asked to provide evidence of their success based on school data.

Across the project, there was an attempt to ensure coverage of the diversity of schools – across states, sectors (Government, Catholic and Independent), types of schools (primary, secondary, boarding); size of schools (small one teacher schools through to comprehensive schools). At the time of writing this report there is a strong skewing to WA schools. This is, in part, due to the definition of “remote” but also due to the success of many schools in the Kimberley region. The non-inclusion of NT schools has also limited the capacity to provide a spread of remote and very remote schools as this state has a large number of schools that would meet inclusion in this study so schools in other states (namely WA) were able to be included. There has also been a conscious effort in the project to be prudent with costs so that collection of data has been focused in regions so as to minimise the travel costs while ensuring maximum coverage of schools. This has resulted in the concentration of schools in the North-West WA region. This will be addressed in the remainder of the data collection as schools from other regions are added. There will remain, however, an over-representation of schools in Western Australia due to their successes.

There will be inclusion of some “provincial schools” from Queensland in the remainder of the study. This is due to the definition of remote from the *MySchool* site. This has excluded many of the isolated schools in Queensland due to their definition. These schools are similar to those in WA but their geolocation (being close to a regional centre) has resulted in their classification. For example, a school such as Halls Creek or Wyndham in WA may be very similar to a school such as Cherbourg or Murgon in Queensland yet the Qld schools are described at provincial while the WA schools are described at remote. This has resulted in skewing to WA. The Queensland schools will be an add on to the study due to costs saved due to a volunteer undertaking field work and saving considerable monies to the project.

	State	Sector	Title of Case Study
1	WA	G <sup>2</sup>	Creating groups for targeted learning
2	WA	I	Structure and support for teachers
3	WA	G	Culturally responsive pedagogy
4	WA	G	Adopting a whole school approach
5	SA	G	Adopting a multi-faceted approach
6	WA	I	Learning in the early years
7	WA	G	The importance of language
8	WA	C	Focus on the early years
9	SA	G	Transitioning to mainstream schooling
10	NT	I	The influence on boarding on learning
11	QLD	G	Teaching students, not mathematics
12	QLD	G	Quality lessons= Great outcomes
13	WA	I	A supportive on-line tool for assessing and planning
14	WA	G	Building a learning culture
15	QLD	G	<i>Multi-age classrooms and early career teachers (awaiting approval)</i>
16	QLD	G	An integrated approach to teaching mathematics
17	WA	G	Leadership in mathematics
18	WA	C	Creating a supportive culture for teachers and students
19	WA	I	The value of Aboriginal Education Workers <i>(awaiting approval)</i>
20	WA	C	One teacher school: Teaching mathematics from Prep to Year 6
21	WA	G	Focusing on Number
22	WA	I	Teachers and AEWs as partners in the teaching process <i>(awaiting approval)</i>
23	WA	I	Catering for the Whole Child in the Learning of Mathematics <i>(awaiting approval)</i>
24	QLD	G	Better together
25	NSW	G	The School with No Gates: Communication <i>(awaiting approval)</i>
26	NSW	G	Creating a Positive, Quality Learning Environment
27	NSW	G	The Value of Agricultural Studies to Cater for Inclusion: Agriculture Is Numeracy <i>(awaiting approval)</i>
28	SA	G	Field work to be done T4
29	SA	G	Field work to be done T4
30	SA	G	Field work to be done T4
31	WA	G	Field work to be done T4
32	WA	G	Field work to be done T4
33	WA	I	Field work to be done T4
34	WA	G	Field work to be done T4

Table 2: Summary of Case Studies undertaken/planned until the end of 2015

<sup>2</sup> The code for the schools is G=Government, C=Catholic and I=Independent

# Consistency within Site Visits

In order to be able to build a coherent case study account, there needs to be some consistency within a site. In some sites, there is remarkable coherence in the accounts shared across the school while in others there is some variation in the accounts shared but there remains a sense of commonality across the school in terms of practices.

To date, two sites have been visited but no story has been written for the schools. This was due to a less-than-consistent story from that school. In one case, the story being told by the administration team was very different from the story being told by the staff and community members. At the other site, the principal had decided to implement a new approach at the school so it was difficult to write a story about current practice that was being rolled out when the successes in mathematics were most likely due to the previous work being undertaken. There would be no evidence that the current approach was resulting in success. As such, in consultation with staff at the schools, no story was produced. This was seen to be important in terms of the internal validity of the overall project.

## Field Visits

Each site visit was shaped by the school. The size of the school influenced who and how many were involved in the case study. At some schools there was an attempt for as many people to be included in the study as possible; while at others, the school sought a particular focus and so targeted personnel were included. Each site visit included:

- Interviews with the principal and/or members of the leadership team. This was to establish the 'big picture' of the school, history of the school, rationale for the approaches taken at the school;
- Interviews with teachers and other staff/personnel at the school. These interviews provided details about how and why particular actions were taken in classrooms, explanations of teacher practice, and more detail of the day-to-day actions of those at the chalkface;
- Observations of lessons to enable a confirmation as to whether the rhetoric of the staff/participants matched the practice. Lessons are profiled using the productive pedagogies schedule. Lessons are noted for their language use, questioning etc so that a comprehensive and detailed account of teacher interactions are developed;
- Document collection – usually of planning documents, policies etc associated with teaching mathematics;
- Field notes are taken during interviews and lesson observations so that they can be used to inform the generation of the case study reports; and
- Photographs for the desktop version of the published case studies.

All interviews were of an open-ended design so that participants could talk about the practices that were adopted at the school, what was working in the teaching of numeracy (and why). All interviews were recorded, transcribed and then the tape discarded.



# Analysis

Two forms of analysis are undertaken in the project.

## Case Studies

Case studies are generated for each site. Each case study is generated within a short period of time after the visit. The text for the case studies are provided to the Principal (or nominated person) who works with the team to ensure accuracy within the report. Photographs are included in a desktop version. Principals are required to approve both the text and desktop versions. Initially, under the usual ethics processes, schools were not to be named. But in the very early stages of the research, schools wanted to be named as the stories were positive accounts of the practices used within the school so they sought to be recognised. University Ethics approved the option for principals to have their school named. To date, all schools have sought to be named.

## Full Study

A number of analyses are being undertaken of the data. All interviews are transcribed and then uploaded into two software packages. Other data (productive pedagogies) will be analysed in full via a statistical package once all data have been collected.

1. The first, NVivo, is a grounded theory analysis so that trends across the full data set can be forthcoming. Interviews are coded, new codes established as the project progresses so that at the completion of the study, a detailed analysis can be undertaken.
2. The second, Leximancer, uses a textual analysis of the words and builds a key concept model.
3. The third, statistical analysis, will be undertaken with the productive pedagogies data, and may be undertaken once all data have been entered into NVivo.

As all data have not been collected at the time of writing this report, the analysis is on-going and evolving. The data presented in this report is for information at this point in time. It is anticipated that there are likely to be some changes that could emerge, and as such, no quantitative data will be presented in this interim report, other than a summary of the productive pedagogies data.

## Data Collection and Analysis at the Mid-Way Point

At the time of writing this report, the team is over half-way through the data collection with 27 case studies undertaken and six more to be undertaken before the end of 2015. All 27 case studies have been written and most have been uploaded to the project website. Some case studies are still with the schools, awaiting approval to be uploaded.

The data are in the process of transcribing with most of the transcription of all completed case studies having been completed, and most uploaded to NVivo.

Analyses are now being commenced in terms of the overall project as there is now a sufficient database to begin preliminary analysis for mega-trends across the data set.

## Ethics

This project has been approved by the University of Canberra Ethics Committee. The study complies with the approvals given to conduct research of this nature. In accordance with the ethics guidelines, schools cannot be named in this report.

Approval has been gained from all regulatory bodies associated with the selected schools – Education Queensland, Department of Education and Children’s Services (SA); Department of Education (WA), Department of Education (NSW) and the relevant Catholic Archdiocese. Independent Schools have the autonomy to opt in or out of the study. All schools, when approached, all had the option to opt in or not of the study, regardless of the authority given by the statutory bodies.

# What Builds Success in Remote Numeracy?

The project website contains all the case studies that have been completed and approved. These case studies are documents that share the 'good news' stories of the schools. The website – [www.canberra.edu.au/remote.numeracy](http://www.canberra.edu.au/remote.numeracy) – is open access. The sharing of the case studies is intended to celebrate the success of those involved in the study, as well as to share exemplary practices with others who may find the information useful for their own contexts.

In this section of the report, the general trends in the data are drawn together. What has emerged from the data is that there is quite a complex mega-story to be told. It is not the case that 'one size fits all' and indeed, schools are working successfully as they incorporate strategies to suit their contexts.

At this stage, we are more than half way through the data collection and coding. The NVivo coding provides some trends, albeit not conclusive, as to salient points being made by the interviewees. From the NVivo coding the frequency of comments provide some indication of key themes in the responses from the participant interviews. At this point, the data provide only an indication of the amount of times that reference is made to a particular topic. Consideration will be made of these comments in light of the number of schools from which the comments are generated. For this point in time, however, they do provide some indication of the relative importance of some factors as noted by the participants.

Topic	Frequency
Numeracy leadership	112
Aboriginal education workers	97
Language of the students	83
Community	61
Grouping students	61
Language of mathematics	53
High expectations	50
Activity based learning	47
Explicit teaching	44
Transience of teachers	40
Behaviour of the students	39
Making maths fun, enjoyable	39
Problems with attendance	38
Strategies to improve attendance	33
Worksheets, textbooks	32
Whole school planning	28
Consistency, routine, structure	22
Relationships with families, community	20

*Table 3: Frequency of responses from the participants (NVivo Analysis)*





## Levels of Analysis

Across the cases, it is quite clear that schools have focused on very different levels within their schools<sup>3</sup>. Some schools have focused on school-wide reforms that often have included the building of a focused culture, vision and approach at the school. The motivation of the schools were often quite different but were bounded by the wider context within which the school operated. Schools often had unique circumstances (and issues) that they need to address that resulted in very different strategies<sup>4</sup>.

At the other end of the spectrum of practices, teachers adopted very particular teaching strategies within their classrooms. These again, were shaped by many different motivators. Some of the practices were informed by the school-wide approaches that were consistent with the vision being enacted at the school level. In other cases, teachers had considerable flexibility to support the learners in their classrooms. Often this was most evident in the smaller schools, but not contained only to small schools.

There was a mediating level – between the envisioned practices of the school level, and the enacted levels across the school and within the classroom. Enabling practices were evident that supported both leaders and teachers to achieve their goals. For example, many of the schools were staffed by early career teachers who are struggling with their development as a teacher (which is not isolated to remote schools but a general phenomenon for new teachers) so practices were put in place to support professional learning and mentoring in numeracy.



*Figure 3: Detailed Model of Practices*

<sup>3</sup> A more detailed discussion of the levels of analysis has been published at the international conference of Mathematics Education and Society group, Portland, USA, June, 2015

<sup>4</sup> A comparison of two schools was undertaken and presented (and published) at the international conference of the Psychology of Mathematics Education, Hobart, July 2015

# Envisioned Practices

*The leadership team commenced at the school and found many students were truant. It was also found that there was not a good perception among the community of the school. The leaders brought in an outside expert to undertake an analysis of needs and provide a strategy for the future. The outcome has been for building a culture at the school that creates a sense of happiness and safety so that the students want to come to school.*

Initially it was not thought that the leadership of the school would be a significant variable in the study, given the intent was to document practice. However, over the evolution of the project, leadership has emerged as a significant and important (macro-level) practice at the schools.

Most of the schools have adopted some sense of school-wide reform so that there is a consistency in the approaches taken at the school. Depending on the context of the school, and the philosophy of the leadership teams, different approaches have been taken at the school level. In some cases, the focus has been on developing a particular school culture (such as a supportive, welcoming school environment), while at other schools, the focus has been on a school-wide approach to curriculum, pedagogy and or assessment. To date, there have been two schools that have not focused on mathematics but rather, directed their work at building a school culture where

students (and families) want to be, and in so doing, have created a very strong culture within the school, that indirectly supports the learning of the students. One school has the motto of being the happiest school in the world, and from this has flowed a sense that students (and families) seek to be at school.

Many of the schools in the study were very clear about the culture of the school that they sought to develop (or had developed and sought to maintain, and sustain beyond their time at the school). Most schools were seeking to develop ways of sustaining the work that had been developed throughout the current time in the school. There is an awareness of the vulnerability and viability of practices with changes in school leadership and staffing.

The schools have also developed leadership teams to support the enactment/rollout of initiatives across the schools. The emergence of middle-leaders (such as numeracy coaches, or numeracy Heads of Curriculum) was observable in most of the case studies. The role of these people was important in terms of managing and maintaining the implementation of the vision of the school, but also to be able to support the teachers (most of whom are new to teaching, and working remote) in their mathematics teaching, learning and assessment. Provision of professional learning opportunities (that align with the vision of the school) was a dominant feature in the success of the schools.

Most of the schools had very good working relationships with the wider community. This was often as a result of considered effort from the school leadership team (and teachers). In some schools, the relationship was in an advisory capacity with council-type bodies to provide input



into the school, while in other cases, the schools had very strong practical support via the employment of teacher-aide/workers within the school. A considerable number of the schools had invested in their local people and saw them as an integral part of the teaching community. These relationships were very context-dependent and were shaped by both the local people and the teaching community. Being able to share the vision of the school with the local people enabled a stronger partnership between the families and the school, along with ownership of the school, the curriculum and outcomes.

One of the more salient findings of the study to date is that in most of the schools in the study, the leadership team has remained in community for a significant amount of time – often more than 5 years. In some cases (such as the Kimberley), principals often move around the region so become familiar with families, communities and the culture of the region. This has allowed the leadership team to establish relationships with the families and community, to build programs that meet the needs of the communities and high standards of learning, and to see such programs enacted and embedded.

*Building relationships with communities is seen as an integral part of a successful partnership in education. Considerable work, trust and effort has been built, over a period of years, to establish strong, positive relationships with the community. Many community people are employed at the school, as a strategic operational plan. Within the school, positive and genuine relationships among staff, and between staff and students is a priority.*

## Philosophy of the Leaders and Schools

Quite a number of the participating schools were part of formal programs, such as *The Stronger Smarter Institute*, that provided professional learning for leaders and staff. Within this program, there is a very strong emphasis on having high expectations of the students. Many of the schools had bought into other programs to support the work of the schools. This included commercial programs, through to some that were available through the relevant system (such as *Explicit Instruction* in the Queensland context or *Getting it Right* in WA).

The espoused values of the school leaders were evident in how they managed their schools and the approaches taken. For example, at one school there was a “relational leadership” approach at the school where the emphasis was on relationships with the community but also about relationships within the school. This humanistic approach to leadership meant that the community links were well developed and an integral part of the school’s operations but also that the school was focused on the relationships among the staff within the school as well. Similarly developing an ethos of being the “happiest school in the world” was the focus of on school so that students felt like they wanted to come to school. Practices were put in place to ensure that students were happy at school and it was a happy place for them.

# Needs of the School and Community

*Building strong links with the community – both the families and businesses – has enabled the school to cater for the welfare needs of the students (and families). Students may not come to school if they don't have food or shoes or have illnesses or not slept. The school works with families and providers to counter these problems and enable the students to come. Part of building this open culture has been to create a transparency at the school so teachers, students and families feel empowered to talk with staff. The school has an open-door policy for all stakeholders.*

In some schools, the needs or culture of the community shaped the reforms at the school. Attendance can be a reflection of the marginalisation students and families feel towards the school. Two schools worked proactively to focus on building a school culture that encouraged families and students to want to come to school. For example, in one school, the students were not attending school. They would walk around community clearly flaunting their non-attendance. The school sought to find ways to re-engage students with school and make school a place where the students wanted to attend. Through providing a happy and safe environment, students began attending regularly and engaging with learning. In contrast, another school had sought to be strong, open and honest communication with families, students and the broader community. The school sought to have no barriers for families to come to school so student welfare was a priority.

## Culture and Shame

Schools had adopted approaches that could be seen to be culturally responsive. For example, shame is a big factor in classroom management. If student feel shame or seek to avoid creating shame for another member of their classroom, they will act in particular ways that may not be conducive to learning. Teachers had developed very effective strategies to engage students without creating situations for shame to emerge. For example, rather than have public displays of knowledge, teachers frequently used small white boards that the students used to write their responses and show the teacher who could then assess learning, but without students being shamed if they had the wrong answer. The interaction was between the teacher and student without any public displays of knowledge (or lack of) and so reducing the potential for shame (and disengagement).

*The case study draws on the success of students who have learning difficulties. Their success is not measured in the NAPLAN outcomes but in their engagement with school, and the possible transition to work. This school has invested considerable resources in establishing an Agricultural Centre where the students can learn many valuable life skills with farming. The experience is very comprehensive, and is now being extended to bring in the elders and seniors to share the experiences of the students, but also to draw on their wisdom of farming in the region. This has been an enriching experience for both students and community.*

# Curriculum Leadership: Leading from the Middle

Being able to implement a model of mathematics leadership requires staff with a strong background in mathematics and/or mathematics education. Given the unique circumstances of remote education, particularly the employment of new graduates and the high turnover of staff and the difficulties accessing external professional development, many schools have adopted some form of internal curriculum leadership. A key role of the curriculum leader in many of the schools was to build a coherent program that operated across the school. This included the enactment of the vision of the school, but also to ensure quality practices at the level of the classrooms. Schools varied in their models from those that had a standard lesson model across the school through to those that were more open in how teachers operated within their classrooms. It is the case, that there were more schools who were focusing on common models so that there was consistency across the school as this was seen to be more enabling for the students who would enter classrooms knowing what to expect and thus engage in learning more quickly and easily.

## Summary

In summary, the key features of the envisioned level of the practices across the sites were:

- Articulate and lead the rollout of a school-wide approach to the desired culture and vision for the school;
- A supportive leadership team to work with staff to enable the effective management of the school culture – both in terms of the culture of the school, and the mathematics learning culture;
- Working relationships with community to share the visions of both the community and the school;
- Change is slow if it is to be effective. Being prepared to evolve a positive culture over an extended period of time and to ensure that the culture is embedded so that it endures changes in staff is critical. Communities and families are often change-weary and hence wary of leaders coming to make their personal mark on the school in return for personal gain, rather than for the gains of students and community; and
- Sharing vision and working with staff and community is an important factor for success.



# Enabling Practices

To mediate between the vision held at the school level, and the enactment at the classroom level. Schools had a number of practices that supported the flow down (and flow up) of vision and practice. These varied from site to site but largely included three key practices.

## Employment and Development of Community Members

The role of community people across the schools varied considerably – in some sites there were few, if any local people employed while at other sites, there were more local people than teachers. In some schools each classroom had a local person (or two) to work alongside the teacher, along with local people employed in other support roles (behaviour management teams, garden staff, bus driver, etc).

There are quite a few schools (from which specific case studies have been developed) where there has been an extraordinary relationship developed with the local people. In these two cases, the local people are an integral and seamless part of the teaching processes at the schools.

Building the capacity of the local people in the education has been a strong feature of many of the schools, but it is noteworthy that a group of schools and their professional team have built a range of support mechanisms to empower the local people in the education process and to build their skills levels (and qualification base). The case study of “Culturally responsive pedagogy” illustrates the role that the AEWs have played in the school to develop pedagogies that meet the needs of the students. Also, the “Teaching students, not mathematics” case study site takes responsibility for an annual regional professional development conference for the local people employed in schools in the region. The conference not only helps to build the skills of the AEWs but also helps to build networks across the region for the local people involved in education.

*Employing, training and building the capacity of the local community helps to build sustainability in the approaches taken. Local people work alongside the teacher, as a teaching partner to build their skills and knowledge, move into taking small groups and over time, taking the whole class. Code switching and being the expert in home language provides strength to the teaching team. The local people also undertake training to build their skills and certifications.*



## Professional Support for Teachers

As with most remote contexts, frequently the teachers at the schools are early career, new to remote teaching, and often remain in community for the duration of their contract. The effect is for a regular turnover of early career teachers. There are sites that have long-standing members of their teaching communities but these are limited. The types of teachers in remote communities means that schools need to have well-developed induction processes for teachers coming into the schools. There are frequent comments to the effect that if a new teacher does not like the approach being taken at the school, then they should not come to this school. Principals and leadership teams acknowledged that it was important for them to be able to have this scope so that they were able to develop the culture at the school without the stress of staff not wanting to buy into their programs. Living and working remotely is fraught with many challenges so having staff at the school who were willing to engage with the approaches valued by the school was integral to the success at the school. Schools had carefully managed inductions, and in some cases, the school provided teachers with the first four weeks of lessons so that they were able to get on with the task of teaching in their early days and in that time come to understand the approaches

*Teachers are provided with the first four weeks teaching plans so that they can begin teaching in the model of the school and get to know their students without having to assess and plan for the first few weeks. The model aligns with the teaching plans of the school.*

*Many teachers are new graduates and do not have a strong content or pedagogical content knowledge. Building an integrated resource that allows teachers to assess for learning, then target teaching to the needs of the students, and then to access good teaching activities enables teachers to provide quality learning for their students. An on-line resource has been constructed for the teachers to enable an integrated approach for teaching maths. It also allows teachers to enter student data and for other teachers to access these assessments. This is invaluable as students move between schools as teachers are able to identify the students' achievements when they enrol in another school (that is on the system).*

of the school. This was found to be invaluable for the incoming teacher as he/she was able to teach the model of the school and the numeracy coach could then work with the teacher around the planning and teaching expected of the incoming teacher. For beginning teachers this was a very good induction into the school (and education as a career) as it took considerable pressure off the person as they came to understand the school, the students, the culture and the community.

# Middle Models of Leadership

In a significant number of the schools, a person had been appointed to lead numeracy reforms. The title of the person varied but the roles were similar across contexts. The role included working with staff – many of whom were new to teaching – to build their repertoire of teaching skills in numeracy/mathematics; to support the teachers through lesson observations and feedback; to provide model lessons to demonstrate quality teaching; to support planning; and where schools were undertaking comprehensive data collection to inform teaching, the role was often to support the collection, interpretation and then action arising from the data collected.

In some schools, funding had been allocated by the State to support this role, but in other cases, the schools saw the role as pivotal to the quality of the programs and had worked their school budgets to enable the appointment of these roles. Depending on the expertise of the numeracy coach, teachers were very supportive of the quality work undertaken by most of those in this role. This was particularly valuable for those early career teachers, usually new graduates in their first teaching role, and also new to remote living.

*Having a support person to help teachers with planning, pedagogy and assessment for learning built teachers' repertoire of quality teaching in mathematics. The numeracy coach helped individual teachers to plan quality mathematics lessons, provided modelling of quality teaching, provided feedback to teachers on their teaching, helped teachers to interpret student data and then to build quality interventions based on student need.*

Many primary school teachers enter their profession with mathematics being their least favourite and most daunting area to teach. A significant number of the schools have appointed middle leaders who assume the responsibility of translating the vision of the school into classroom practices. The role is variously called a numeracy coach, Head of Curriculum etc, but the role is to provide professional support to teachers to help them develop quality mathematics lessons and programs, along with the interpretation of student to inform subsequent practice. The Numeracy Coach can undertake various roles in the school and these have included modelling lessons, helping with planning, observing lessons and providing feedback. Teachers have valued this support. In some schools there has been strategic planning in the senior executive to enable the funding to be redirected to enable the employment of a numeracy coach. For example at one school, the leadership team, in concert with the staff, decided that the student:staff ratio model could be adjusted so that teachers had more students in their classes so as to free up one teacher who would take on the role of numeracy coach. The teachers recognised that there is considerable flexibility in student numbers *vis a vis* attendance so that the figures could be manipulated to enable the employment of a dedicated person to help with numeracy. Teachers valued this support and were prepared to have larger classes for the access to support.



# Transitioning

Across the study, there have been a number of examples of schools supporting students in transitions. These transitions vary from context to context. In some cases the transitioning has involved taking students from the communities and supporting them to transition into mainstream schools and urban life so as to broaden their experiences while providing a stronger education that would have been possible in a remote community. In other instances, the transitioning has been from the home to school, where the school (based in the community) builds the children's (and families') skills and knowledges about schools and mathematics so that when the child moves into formal schooling they are ready. This readiness means that the students are then able to engage with substantive learning rather than learning general skills associated with school behaviours.

## Summary

In summary, the key points to be made with regard to the enabling practices observed in schools are:

- Employment of quality local staff to work alongside teachers. Investment of time and resources were evident of local people who often took a strong role in the classroom and were an invaluable resource within the school;
- Quality professional learning for teachers – most of the schools were staffed by new-to-teaching, and often in their first remote position so considerable support was made available to induct into remote education, and to provide on-going support; and
- Middle Leaders – often referred to as Numeracy Coaches or Instructional Leaders - were a feature at many of the schools. These people's role varied depending on the context and needs of the teachers but included sharing the vision of the school and supporting teachers to enact the vision; providing in-class support for teachers from planning lessons to providing feedback.



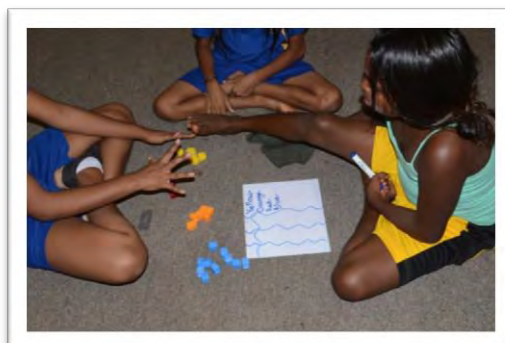
# Enacted Practices

The enacted practices are those practices that can be observed at the level of the classroom. Over 150 lessons have been observed as part of the study. There has been considerable diversity in practice at the level of the classroom. It is not possible to capture this diversity in this report. Over the project, a productive pedagogies (Lingard et al., 2001) profiling has been undertaken of the lessons observed.

## Productive Pedagogies

Across all schools, profiling of lesson observations has been undertaken. Using the productive pedagogies framework, the lessons have been scored as per the model. Here, a score of one is used to denote absence of the pedagogy and a five is used to indicate that the pedagogy was an integral and featured part of the teaching. At the time of writing this report, it is only possible to report on the data collected to date. This is not the full data set but there are some emerging patterns across the schools.

What appears to be the case is that most of the schools have a strong focus on intellectual quality with scores often quite high (mid+ scores of 2), the mean is compromised by the item where knowledge is made problematic (mean=1.54); making learning goals explicit to the students where nearly all classes specifically stated to student the learning intent of the lesson; using the students' mathematical knowledge as the basis for planning for learning; but there is very little evidence of teachers using the cultural knowledges recognition of difference) with most scores in the quadrant in the low scores of one. There is, as has been found in other studies, (Education Queensland, 2001) that teachers were also very supportive of learners with the social support pedagogy scoring 3.10.



Intellectual Quality	Supportive School Environment	Recognition of Difference	Connectedness
2.11	2.35	1.33	1.83

*Table 4: Mean scores for quadrants of pedagogy*

It is noted that this set of data is incomplete as more schools need to be added to the data set and the final data may differ from this interim data.

# Differentiation and Class Size

As would be expected, there is considerable diversity in remote Indigenous classrooms. There are many factors that impact on the constitution of any classroom and this impacts on diversity within those classrooms – issues of attendance, health, transience, family life, community life, well-being and so on all impact on the learner.

Without exemption, all schools and teachers commented on the diversity within their classrooms and schools.

Schools varied in how they dealt with this diversity. Often the strategies were contingent on the size of the schools – larger schools had more capacity to be flexible in their structural arrangements, while smaller schools had less scope for movement in their capacity to offer different arrangements within their schools structures.

The size of the schools varied considerably across the study, and with that, the sizes of the classrooms. Some schools had worked to create small classes to enable more teacher time for students, while others sought to have class sizes commensurate with non-remote settings so that students would have more interaction with peers. What was apparent, regardless of class size, was that in each classroom there is considerable diversity. What was consistent across the schools was that teachers used data to plan teaching. In most cases, students were on individual learning plans and data were used to construct these plans, and for practices within the classroom. Grouping students according to achievement was commonplace, but there was also considered variety in grouping techniques – in some cases, heterogeneous grouping was implemented so that students could learn from each other, and in other cases attendance and behaviour were the basis for grouping students.

*Students were grouped by attendance – those who attended regularly and behaved well were placed in one classroom, often working at benchmark levels. Students whose attendance was somewhat sporadic and needed more intervention were allocated to another group so that focused work could be undertaken. Those who attended infrequently and were poorly behaved were placed in a small class with a teacher who could work on behaviour management and intervention. This process allowed the regular attenders to achieve at level without the disruption of poor peer behaviour.*

## Grouping Students by Attendance (and Behaviour)

Some schools had worked with models of class differentiation through allocating students to classes based on attendance and behaviour. Students who attended regularly and behaved well were often performing well, and often at standard for their ages so that classes could run as a mainstream class. Students who attended less regularly often needed more support so were placed in classrooms that were smaller and more flexible to cater for the greater diversity in learning needs. For some schools, small classes were made available for those with poor attendance and poor behaviour. This enabled the teachers to work closely with the students, while also ensuring that they did not distract the learning of the peers who were attending regularly. This enabled the schools to support the needs of the learners and enabling all students to achieve.



## In-Class Grouping

Grouping within classes was commonplace across the study. Diversity in classrooms was commonplace so teachers needed to find effective strategies to cater for the diversity. Many teachers had spent considerable time building group work skills. In one case study, the teacher had spent one term building the group work skills of the early year students. Depending on the lesson, or the school, teachers frequently used heterogeneous groupings so that students could support each other and this would enable teachers to undertake focussed teaching with smaller groups, or to undertake assessments and interventions within the classroom.

The grouping allowed teachers to target activities to meet the needs of the learners so that within any group, students could be of any age and undertaking a particular activity. Most classes across the study were diverse in terms of ages of students (multi-age classrooms), and in some cases, were a one- or two-teacher school. This meant that it was possible to teach only in the small group context given that there was so much diversity within any one class.

## Individualised Learning

For most of the teachers, the diversity within a class meant that learning needed to be tailored for individual students. Teachers catered for this in many ways – through Individual Learning Plans, tailored learning activities (such as worksheets or modified activities within a group of each learner). In many classrooms, teachers tailored activities so that they appeared to be the same activity but were differentiated for each student. For example in many schools in one geographic location there was a strong emphasis each day on number activities – such as counting on, back, skip counting etc. Teachers had the same activity sheet for each student, but the ‘magic number’ written on each student’s sheet was targeted for the student. So, one student may have a number of 8 from which they did their counting activities, while another may have been 65, or 122 or 2.5. This targeted learning was commonplace across many schools. The activities not only were tailored to meet each student’s needs, but also appeared as if each class member were undertaking the ‘same’ activity thus reducing any external appearances of difference and potential for shame.

# Data-Driven Pedagogy

Assessment-for-Learning featured in most of the schools to date, and where data were used to inform teaching. The schools varied in their assessment tools but all used some form of recognised testing/assessment scheme. Students were assessed against the scheme or model and the results were used to both inform subsequent teaching but also to monitor student progress.

*A wall in a shared space, but away from the public eye, was created. All student data were displayed. Each semester, the staff would hold a special meeting to share the growth of their students' learning over that time. The wall was a permanent fixture so that teachers and students were able to see (and enjoy) the learning growth of their students.*

## Data Walls

In many classrooms and schools, student data (usually for literacy and numeracy) were on display. In one school, a whole wall in the staff room had been designed to show all students, their levels of achievement but also their growth over a semester. The school created an event as they moved students forward and collectively celebrated students' successes. Teachers often had student data displayed in their classrooms. Students (and families) could see results on given tests, but also how data were improving. Similarly, in some schools, there was a wall with whole school data. What was salient in these displays was the public display of results, along with growth over time.

Many schools used the data to share with families to show growth over time, as well as to illustrate to families the mathematics

that their children were able to do, what was expected of them for their age (national benchmarks) and how they were performing in comparison with these national expectations. For example, a school had made the data the basis of teacher/family interviews. The interviews were conducted in school and in out-of-school contexts (such as the home or public area). Another school conducted their final parent interviews at an event at the local pool which was strongly orientated for family involvement. The data were presented in a family-friendly manner so that families could understand the growth of the students. This could be in showing how the students were working with larger numbers (or part numbers) and operations. Pre data (as in the activities that students would do for that data) were shown, and then activities were shared as to what the student was now undertaking. This helped families understand what was happening at school and how their children were progressing against the teaching and curriculum expectations.

*Student progression was shared with families – either in their home, at the local pool or at the school. The data of the students' success, and progress, were shared in a way that families could understand the progress that had been made, but also where the student was in terms of national benchmarks. Teachers provided examples of the students work to show the successes, but also shared examples of what is expected for that age level and how the student was tracking against the national expectations.*

# Explicit and Consistent Lesson Structures

While there was diversity across the schools in terms of expectations of how teachers would organise their classrooms – ranging from each teacher being able to decide their own approach, through to highly prescribed teaching methods. While there was this diversity across the schools, it was commonplace for the teachers to be expected to be consistent in their approach to the teaching of mathematics.

A number of case studies focused on lesson structures and how they support learning in a very dynamic way. One detailed case study provides details on how lesson structures varied to cater for, and ensure, quality mathematics lessons that were over a two-hour period. By having a set structure of all mathematics lessons across the school has meant the students know what to expect as they enter any mathematics lesson, how the lesson will change over the two hour period. This reduces students' (potential) confusion about what they are to do, what is expected of them, etc as they enter a lesson. In

turn, this results in the students engaging with the mathematics rather than trying to guess teacher expectations and their roles in that lesson. Also, with every lesson across the school being conducted in the same way, students know what to expect on any day and any year. Families also know how the lessons operate, so over time a strong culture has developed so that there is no confusion or misconceptions about the ways in which the school operates. This has been made very transparent to the community and students.

*Mathematics lessons were an uninterrupted two hours, usually the second session of the day. The lessons followed a format where the students usually undertook the following activities each day:*

- *Consolidated learning by revising concepts at a fast pace to develop fluency*
- *Practice mental maths*
- *Explicit teaching of new mathematics concepts*
- *Exploration/use of digital media for mathematics learning.*



## Building Proficiency in Number

*An emphasis on the big ideas of number – counting, number (whole and part), place value and operations – was central to the mathematics curriculum at the school. Most of the lesson was spent building competency, confidence and fluency in number as it was seen to be the key to numeracy outside school. The application of number was undertaken through very hands-on activities such as cooking, measuring and building so that students could see the application of number in real contexts.*

A key focus for many schools was to build proficiency with number. Somewhat related to the culturally-responsive pedagogy, teachers were aware that for many remote and very remote students, number is not as evident in their daily lives as it is for urban students. Taking this into consideration, the teachers used the extended lesson format to build number skills so that a deep knowledge of number could be developed and automaticity with numbers could develop. The lessons revised many number concepts each day, often in new ways, but always to help students remember their previous learning and to build skills, as well as confidence, in number and its application. One case study emphasised the importance of number in mathematics and spent a considerable amount of lesson time on building number skills, application and automaticity.

## Pacing of lessons

There were few, if any, schools that did not adopt an approach that was fast paced. Teachers reported that to keep students engaged, the fast pace helped as it gave limited opportunities for the students to opt out of the lesson. To keep the pace right, various strategies were used, including:

- Revising concepts that had been covered so the activity was designed to build automaticity with number (or other strands), rather than deep understandings;
- Use concepts with which students are familiar so that the pace can be kept up;
- Using a range of presentation styles: PowerPoint; activities provided with Interactive Whiteboards (SmartBoards); flash cards; and small white boards;
- Using personal bests rather than competing with peers;
- Using timed exercises so that students know that they have x mins to complete the tasks or do as many questions as they can in the nominated time;
- Use a clock that counts down the time so that students can see how much time they have left to do the activities; and
- Use of humour to keep students engaged.

*Quick paced questions, often recalling basic skills and knowledge, helped to engage the learners. The questions could be posed verbally by the teacher, put on the whiteboard and a timer displayed so the students could see how long they had; or a rapidly fired screen that revolved through the displays at a nominated time. The teacher interspersed his questioning with humour as this was seen to keep the students engaged and motivated.*

# Language-Based Mathematics

In all of the remote and very remote schools in this study, the use of Standard Australian English was at best the second language for the students, or in some of the more remote locations, it was a third or even foreign language. Coming to learn mathematics was as much about the mathematics as it was the language per se. Mathematics has many nuanced terms, processes and concepts. Coming to learn these in a medium (Standard Australian English) can be a challenge so finding ways to scaffold learners is important for success. In some schools, there was either an explicit strategy whereby the early years allowed the students to use their home language as they navigated their way through mathematics (and school in general) and that by the time they were approaching the middle years of primary school, they had gained a proficiency in SAE. There were a wide range of practical strategies teachers used to support the transition into SAE, but most frequently the local Aboriginal people were critical to the approaches adopted. For most of the teachers in this study, they did not learn the home languages of the students, so

*The Aboriginal Education Workers in the school played a significant role in supporting teachers to create scaffolds between the home language and Standard Australian English. The Aboriginal Education Workers built resources that represented activities from the lives of the students, and created bilingual resources for the students – books, big books, songs, and prompts/posters – to use in the classroom to reinforce the links between the home language and the language of mathematics.*

the local people were central to brokering between the home language and SAE.

*Working with the local people, as a teaching partner provided students with role models on how to speak SAE but also to validate the home language and to navigate code switching. The teacher and AEW worked as a teaching partnership. The teacher would read the text, the AEW would then translate into home language. The teacher would model, the AEW would then model as the teacher had done, but also add things that might also help the students. The teaching partnership grows so that the AEW can become an educator in his/her own right.*





# High Expectations

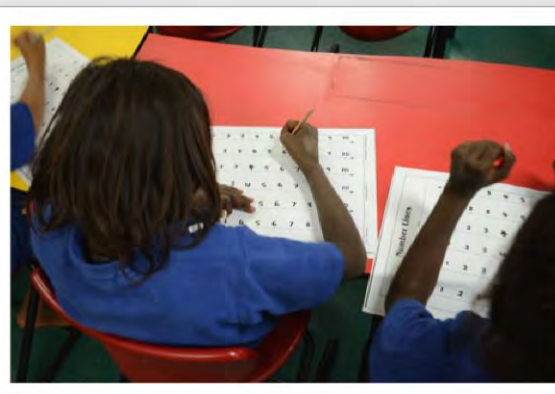
A query run through NVivo showed that all schools, to date, have made explicit reference to 'high expectations' of students and/or staff. In total, 459 references have been made to high expectations and is the most cited comment in the study to date. While some schools have been part of the "Stronger Smarter" training, this is not the case for all schools. There is a clear trend for the schools to articulate (and enact in most cases) having high expectations of learners.

*Some schools have adopted an approach where students are provided with age-appropriate mathematics. That is, if the student is in a particular year level, e.g. Year 9, then he/she will be given mathematics from the Year 9 content of the National Curriculum: Mathematics. If the student is unable to undertake this level of work, then it is the teachers' responsibility to provide appropriate scaffolding to build learning to enable the students to attain this level of achievement. As many participants in the study were very clear to articulate, it is insufficient for teachers to hold students back and only offer an impoverished curriculum.*

An approach adopted in a number of the schools was to give the number strand a high priority. The approach was founded on the knowledge that number sense and proficiency was a key life skill, and many of the resources for number were absent in the community. As such, building strength in number knowledge was a priority for mathematics learning.

## Mathematics, Mathematics, Mathematics

It has been recognised that good teachers of mathematics usually have strong content knowledge. This emerging literature poses a challenge for many primary school teachers whose mathematical content knowledge (MCK) is often quite weak. A number of the schools had developed professional learning around mathematics *per se*. The teachers were asked to build their own mathematical understandings. The numeracy coach was an integral part of this professional learning.





# Culturally-Responsive Pedagogy

Working with Indigenous learners requires some consideration of the cultural background of the learners. There is considerable evidence, to greater or lesser degree depending on the schools, as to how culturally-responsive pedagogy has been implemented at the school. In some cases, the school has taken a line whereby the leadership team (often in consultation with the community) has decided that school is responsible for 'school business' and community is responsible for 'cultural business'. The approach at these schools has been for literacy and numeracy to be priority learning areas for the students. In contrast, there were a few schools that incorporated cultural business in the schools. There were some tensions between schools and communities with regard to the incorporation of cultural business into the school. A few community representatives from a number of communities expected that school incorporate more cultural activities (such as dance, art, festivals, etc) into the school curriculum in a very substantive manner.

*The teachers made explicit references to the resources in the classroom so that students could use these as prompts but also to support independence of learning (by not asking for teacher support). For example, if a teacher had constructed a resource that exemplified the various words that could be used for the four operations, the teacher would model a problem – such as not understanding a word in a word problem (distribute) they could look at the word board and find out what the term meant and to which operation it was associated. This encouraged the students to use prompts in the room rather than develop a dependency on the teacher.*

What is clear across many of the sites is a strong cultural awareness and the need for pedagogies to be adjusted to incorporate cultural aspects of the students into the learning. A number of important strategies were observed. Shame is a big factor impacting on participation and learning. A few schools have taken up a strategy of making students to write on small whiteboards (or other tools to show their understandings) and then display these to the teacher. The teacher is able to do a quick scan of the students' responses and assess for learning. Depending on the results displayed by the students, the teacher is then able to adjust teaching according to the students' responses. This process allows students to show their understandings without being shamed, and allows the teacher access to those understandings. Similarly, as a white board, there is no permanent record of the work, so for Indigenous learners who may be wary of writing an numeral or diagram incorrectly, the erasable surface means they do not have to focus on the accuracy of the representation, but rather on the concept. Again, this allowed the teachers better access to students' mathematical understandings than through recording work (permanently) in a book.

While discussed earlier, language, was also an important consideration in many classrooms, particularly noted in those where the students were still strong in home languages (and creoles), and to a lesser degree to where they spoke Aboriginal English. There was recognition that language is an important factor in learning mathematics – both in the relay of concepts as well as the language of mathematics itself. Many classrooms had rich displays of resources that were targeted for the learners in their classroom and for the concepts being taught.

## Group Work

The diversity within each classroom was a constant across the project. In some cases (at the larger schools) the diversity was within the age group, in other cases (at the smaller schools) the diversity was due to multi-age classes and the diversity within the learners. Teachers dealt with this diversity by differentiating the curriculum, through targeted learning activities. To manage the diversity at a very practical level, and depending on class size (and attendance), most teachers used a group work structure in the classroom. The structure of the group work varied depending on need and context – sometimes the groups were homogenous groups where the teacher would use a targeted group to teach new concepts to that small group. At other times the groups would be heterogeneous so that students could work independently and support each other. Teachers used the groups to suit their needs for a particular lesson. Often, in the larger schools/classrooms, there were three groups in a class – one with which the teacher would work; another which with the AEW would work, and another which would work independently. This practical organisation of the groups did require considerable effort from the teachers, particularly if the students had not been skilled in group work, and/or had been used to dependent learning. In one case, the teacher indicated that it took one term to build the group work skills but it was very successful once the students had become proficient in working in the groups.

## Early Years

A number of the cases have focused on the early years of schooling. In some cases, the school had created new spaces for the prior-to-school experience so that the teachers could provide learning experiences that built the children's school readiness – socially, behaviourally and cognitively. Providing the experiences for the children to learn many of the pre-number concepts prior to coming to school, such as counting, recognising/writing numbers, familiarity with the materials used in mathematics (counters, blocks, etc) helped in the successful transition into school.

One of the side benefits of providing prior-to-school experiences also meant that families felt more familiar with, and in, the school and were more likely to send their children to school once they commenced formal school. It also helped with the transition into school – it was no longer an unfamiliar place and children fitted into school more easily.

The early years experience was also a feature of a number of schools. Here the teachers worked on building the students basic mathematical concepts, skills and processes, often with quite diversity in the entering funds of knowledge of the students. In some cases, as noted in the language section of this report, building experiences that linked the home language (and culture) of the students with the SAE of the school was undertaken in the early years.

# Attendance

As in most Indigenous communities, attendance is an issue. But there is also considerable diversity among the students and families in relation to attendance. In some schools, there are cohorts of students who attend regularly while at the other end of the spectrum there were students whose attendance was very sporadic and very transient. Schools have developed a range of strategies to build attendance in a positive (rather than punitive) manner, and to cater for the diversity in attendance. In one case, the school has been very proactive in creating Fridays as a fun day so that students want to come to school, but the activities are rich in terms of mathematics.

Catering for the diversity within a cluster of students, such as year level, a number of schools have created groups or classes (in the larger schools) that are built around attendance.

Schools reported a correspondence between behaviour and attendance so have created spaces to cater for the regular attendees and the irregular attendees. The students who attend regularly are placed in one classroom and are able to achieve at benchmark, while those with poor attendance, often poor school behaviour and low achievement are placed in smaller, focused classes where their needs are met and without the behaviours distracting from the learning of other students.

*With Fridays being a very poorly attended day, the school has opted to increase the attendance hours during the week and Friday is a half day. Fridays is a 'fun day' with many activities for the students so that there is an incentive to attend school. The activities have strong literacy and numeracy basis but all have a high level of activity, engagement and fun. This has helped build attendance over the week.*

## Summary

In summary, the key points that emerged in relation to the enacted practices at the level of the classroom were:

- Being explicit about the intent of learning, how lessons will be organised and what is expected of the students;
- Differentiating learning to enable identification of students learning needs through assessment for learning practices and then to build quality learning experiences that meets and extends the needs of each learner;
- Recognising language as a key variable in learning, providing appropriate scaffolding in language (home and SAE) to build bridges between the home and school, and provide entry into school mathematics;
- High expectations – of both students and staff – across social and mathematical norms. Students should be provided with age-appropriate learning outcomes (e.g. algebra for secondary students) and then quality teaching practices to scaffold learners to achieve those learning intents;
- Focus on mathematics – mathematics was a priority for learning;



- Culturally responsive pedagogy was evident where many strategies were developed to cater for culture of the students. Most obvious were strategies used to build language (of mathematics and the home language as well); and to have strategies that were cognisant of issues of “shame” within the classroom. There has only been one class to date that incorporated the more overt aspects of culture (e.g. art) but other teachers have sought to draw on the everyday activities that the students undertake (e.g. fishing, trips to town);
- Creating a sense of numeracy for life. Most communities had limited numeracy resources that were synonymous with urban living. Teachers have developed many strategies to create opportunities for students to see the purpose of mathematics/ numeracy in their lives;
- Pacing of lessons, where the teachers kept a good quick pace in their questions appears to engage the students and keep them on task. The pacing was often in the earlier parts of the lessons to engage the learners and provide them with the necessary knowledge and skills that would be needed for later work. The pacing primes the learners for the lesson; and
- The early years were seen to be a launching pad into school, and numeracy. Building skills in maths (and the language of maths) in the early years was a crucial and integral part of the building blocks for mathematics. Many schools have invested significantly to build a positive and rich learning experience in the early years.



# Summary

From the overall study, to date, there are some significant findings emerging from the study. Some are not surprising, but what is of value is that this is the first study of its kind to be undertaken and hence it provides an overarching analysis of schools across Australia that are working well despite the challenges that face many, if not most, remote and very remote schools.

Three levels of success emerged from the study and collectively these provide a framework for building success. Each level informs and impacts on the other. This was particularly evident in the highly successful schools.

In summary, some of the key findings in the study include:

- Leadership is a key factor in building a successful culture in the schools. The culture is one that fosters learning and encourages students and families to attend school. Respect for the community, the culture and the language of the families was a common theme throughout the visions of the schools, but with the simultaneous emphasis on a rich, rigorous curriculum that has high expectations of all parties – students, teachers, school and community.
- Middle leadership – where mathematics curriculum in both content and pedagogy were the focus of the practice. Providing support for teachers to develop the skills, knowledge, practice and dispositions towards quality teaching of mathematics in remote contexts is complex. Providing informed support that builds these within the teachers, who are often early career teachers with limited teaching experience, builds the quality of the teacher, but also helps to maintain the vision of the school so that there is a consistent philosophy embraced by the school and projected to the students and community.
- Providing a consistent and transparent framework enabled teachers to know what and how to deliver quality learning for students. That same consistency enabled students (and families) to know what was expected of them in mathematics lessons and so engage with mathematics rather than trying to second-guess the teachers' or schools' intention. In so doing, students were able to engage in learning.
- Data-informed practice provided opportunities to target learning to meet the needs of the learners. Time was used strategically to enable teachers to focus mathematics learning for each individual student. Given the diversity in achievement (and attendance) at schools, the mathematical understandings of students varied within each classroom. Targeting learning for the individual and organizing classes in groups, as a whole class and for individual targeted learning enabled teachers and students to focus mathematics learning and enable growth in understandings.
- Culturally-responsive pedagogy was often used but in terms of recognition of the culturally nuanced behaviours (such as shame) and language that the students bring to school. Recognising and validating the social, cultural and linguistic norms of the students, and then scaffolding learning to build bridges between the culture and language of the students and school mathematics provided pathways into the learning of school mathematics. Much of school mathematics is about the representation of the dominant Anglo-Western culture and language so students need ways of accessing these norms and building strong understandings of this knowledge system.

# Terms and Definitions

Throughout this report, some terms are used that may be interpreted differently by readers, or need clarification as to how they have been used in the report.

## Remote and Very Remote

Remote is both an objective and subjective condition. Geographical isolation can be measured by the physical distance from a major regional centre.

In some states, the definition of a physical distance from a regional centre but this is not always a viable definition. For example, in Western Australia, the physical distance certainly impacts on the sense of remoteness. However, and in comparison, Queensland has few schools listed at remote or very remote, but the same sense of isolation can be applied to schools that are listed as provincial. To this end, we have also included a number of Queensland schools that have the same or similar living conditions as those who are geographically 'remote' but are listed as being provincial.

## Success

For this project, success was initially defined by (but not contained to) success in numeracy results in NAPLAN testing. It is recognised that this is not a reliable indicator of success due to the nature of the testing. It is, however, the only 'objective' criteria that allows for comparison on a national scale. Scans were conducted on the NAPLAN data from 2011, and schools were initially approached who had scores that were better or significantly better than like schools over a period of at least two years. This at least gave us some indication that the scores were not an abhorrent set of results.

Schools were also included on recommendation. Recognising the limitations of NAPLAN testing, systems or other schools could suggest schools to be included. For example, in one case, a boarding school was recommended by the Independent Schools Association. The school had been established in a very remote area away from the communities, and at the request of the communities. The communities were quite dysfunctional and elders recognised the impact that this had on learning, so taking the students out of the mayhem and providing a strong learning community was seen as a viable way to help them. The students entered the school with significantly low numeracy levels for secondary students. Many were functioning at the equivalent of a Grade 2 level. The school was able to add 3 years achievement levels when the students came to school for the year. So while the data supported strong growth, these data would not be reflected in NAPLAN achievement due to the very low entry level. But it is also undeniable that the value-adding by the school was an indicator of their success.

Schools were asked to provide supporting data about their achievements so that, where possible, this could also be used to justify their achievements.



## Aboriginal Education Workers

Throughout this document we have opted to use the term Aboriginal Education Workers (AEWs) in order to remain consistent. It is recognised that there are many terms used across the states and communities to refer to the local Aboriginal and Torres Strait Islander people who play an important role in the schools. There has been quite a diverse range of roles played by the local peoples within the schools ranging from qualified teachers, assistants to the teachers, office workers and grounds people and maintenance. In this report, the focus is on those whose role is contained to the classroom. With respect to the various sites that used terms other than AEW, it is acknowledged that the terms should be included here. These titles have included Aboriginal Indigenous Education Officers (AIEOs); Teaching Assistants (TAs); Teacher Aides (TAs).



# Publications Arising from the Project

In this section we share the publications that have arisen from the project to date.

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