

ACER Research Monograph

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Supporting English Literacy and Numeracy Learning for Indigenous Students in the Early Years

Tracey Frigo, Matthew Corrigan, Isabelle Adams,
Paul Hughes, Maria Stephens, Davina Woods

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FOREWORD

On behalf of the members of the Aboriginal and Torres Strait Islander Education Advisory Committee to the Australian Council for Educational Research (ACER), I am pleased to provide the foreword for this report of research into educational outcomes for Indigenous students. We welcome such important research findings.

Previously the ACER conducted a research project which investigated the literacy achievement of Indigenous students in Years 3 and 5. This followed the National School English Literacy Survey and the outcomes were reported in the publication *Enhancing English Literacy Skills in Aboriginal and Torres Strait Islander Students* (Batten et. al., 1998). As a result of our experience in that study it was considered essential that we conduct further, longitudinal research with younger Indigenous students to run alongside ACER's Longitudinal Literacy and Numeracy Survey that has been ongoing since 1999. We followed the same processes in that Indigenous field researchers were used in collecting the qualitative information used to enhance the testing data to produce this publication.

The study provides much rich information about students and teachers as they engage in the processes of teaching and learning literacy and numeracy. It draws attention to the importance of a good start, attendance, engagement, supportive teaching strategies, strong links between schools and their communities and school environments that recognise Indigenous cultures. It also notes that Indigenous students commenced school with a broad range of skills and abilities not dissimilar to many non-Indigenous students. Whilst school and geographical region accounted for much of the variation in student achievement, a number of factors were identified as related to subsequent growth in achievement, including initial achievement, language backgrounds other than standard Australian English, attendance and attentiveness. We would hope that such information would enhance the professional development of teachers and provide them with information and ideas that they could use in their classrooms. In that respect this publication has much to offer and the Advisory Committee commends it to the profession.

Now it is time for us to look ahead. Recently the ACER has published a *Review of Contemporary Research into Educational Outcomes for Indigenous Students* by Suzanne Mellor and Matthew Corrigan. This review supports the contention that much more focused and longitudinal research into the educational outcomes for Indigenous students is needed. To that end it is planned to continue tracking the Indigenous students who were part of this study, and add others, so as to add to what we have found in this study on the first three years of schooling.

In doing so the committee and I would urge that we expand our collection of qualitative information so as to 'drill' more deeply into the areas of literacy and numeracy for Indigenous students. We believe that we need to do this in order to get at detail as it relates to contemporary Indigenous culture that can provide real curriculum and pedagogy practice for teachers.

The *Review of Contemporary Research* publication highlights the discontinuity between research and policy in some areas and argues the need for more extensive research. It argues for more qualitative and case study research along with a more rigorous evaluation of indicators by quantified research into actual achievements. Changes to practice in the field of Indigenous education are required because we really do not know enough about improving Indigenous students' learning outcomes.

So what are the important directions for this research? In the following I am indebted to Ms Bronwyn Parkin and Ms Caty Morris, both from the Aboriginal Education Unit of the South Australian Department of Education and Children's Services who have provided some examples.

There are increasing concerns about the available literacy and numeracy assessment tools used in schools and state systems to assess the learning outcomes of Indigenous students (amongst others).

So rigorous and thoughtful research is urgently needed. Is there a way of developing assessment tools that are not first and foremost assessing middle-class cultural knowledge rather than literacy?

For example, in a recent Literacy and Numeracy assessment Year 5 students had to interpret information from the Pura Milk 36'rs basketball team website. One question asked them to explain the role of the Pura Milk logo on the WebPage. Who has the cultural advantage here - the student whose father has a strong interest in basketball, season tickets to the game, and drinks fresh Pura Milk from the cool room at the supermarket - or the student who lives in a small community in the country, follows the local football team, and who drinks generic brand long-life milk bought in a box?

Literacy tests assess students' capacity to use standard Australian English. Aspects include vocabulary, grammar and spelling. Yet how can we separate the assessment of spelling from testing student word use? When a Year 7 student is asked to correct the word 'pleasant' in the sentence *My Uncle finds it pleasant to build model trains*, who has the advantage, the student who has frequently heard, read and used this word in their first language, or the student whose uncle, even if he made model trains, would say they were 'deadly'?

Serious work needs to be put into finding ways of levelling the playing field so that assessment tools, both at systems level, and school based, test what they purport to test, rather than peripheral but dominating cultural knowledge. This is a very complex challenge, but needs to be faced. *The ACER Developmental Assessment Resource for Teachers* (Bodey et al, 1997), used for the National Literacy Survey in 1997, has attempted to address this issue by ensuring that all aspects of the test are based on the one field of cultural knowledge. Teachers who use the test are encouraged to build field knowledge before the students undergo the assessment.

Much of what we learn from assessments points to the urgent need to be more explicit in our teaching of important literate and numerate concepts. The current limited outcomes are a pedagogical issue for teachers, not a learning issue for Indigenous students. The Strategic Results Projects, documented in *What Works* (McRae et.al., 2000), have proposed educational practices, theories and pedagogies which are worthy of further investigation. However, the question might now be, 'What work does this do?' No educational practice will meet all students' educational needs, so we need to look closely to identify what aspects of these practices do important work, should be valued, carefully documented and more widely supported.

For example, the *Scaffolding Literacy* project from the University of Canberra was trialled with significantly improved literacy outcomes in remote English as a Second Language Aboriginal Schools (McRae et.al., 2000). What is it about this pedagogy that makes such a difference? Can it be used more widely in mainstream schools where most Indigenous students attend? What important work does it do in the teaching of literacy? What aspects of the curriculum does it not address? By 'drilling' more deeply into issues as above we should be able to advance even more what works in literacy curriculum and pedagogy.

Numeracy is an area we have also researched in this publication and the testing reveals that Indigenous students are equal or better than non-Indigenous students when they start school – but then gradually fall behind. I am of the view that we have not paid enough qualitative attention to numeracy. It tends to get added onto our discussions about literacy and somewhat lost in the final conclusions. The *Improving Numeracy for Indigenous Secondary Students Project* (INISSS) from Tasmania for example, used problem-solving tasks from the Maths Task Centre which support 'working mathematically' approaches (Callingham, R. & Griffin, P., 2002). This project has shown encouraging results over a longer term. What is it about this project that has helped students to think mathematically? Can it be used effectively with remote and rural Indigenous students? What important work does it do in the teaching of mathematics and numeracy? What aspects of the curriculum does it not address? How can this learning be transferred to Junior Primary/Primary settings?

Compared to other fields of research literature is limited in respect of Indigenous students. Work done in numeracy by Thelma Perso, *Improving Aboriginal Numeracy* (2003), supports previous work done by others and raises the following concern:

Research findings are documented and reports are written, but little of any practical use seems to filter through to classroom teachers. I believe that the numeracy outcomes of Indigenous children will only improve when teachers of Indigenous children take three things into account in their planning and teaching:

1. Aboriginal people; their culture and their transition into schools of the dominant culture;
2. The mathematical understandings brought into the classroom by Aboriginal children; and,
3. Explicit mathematics teaching required by all children in our schools. (p. vi)

Other work has been done by Frigo in New South Wales whose literature review reveals that 'Much of the research relating to Aboriginal children and mathematics has been conducted in geographically remote areas of Australia'; she goes on to suggest that 'there are many general themes which emerge in the literature (for example, identifying the mathematics that exist in the children's home environment) that can be applied to both urban and rural Aboriginal children' (Frigo, 1999, p. 4). Howard (for example, 1998), and Callingham and Griffin (2002) have also contributed to research with the latter two making important recommendations for further possible work on a greater scale with Indigenous children working mathematically. Their work with the INISSS project in Tasmania along with Perso's work could be used as a basis for further developments.

There is much to be learned and done to improve numeracy outcomes with Indigenous students. The following are suggestions:

- A large-scale longitudinal study needs to be done across Australia re numeracy outcomes and trialling different approaches, which are based on the research projects mentioned above;
- Working with a cohort of Indigenous students who are doing well in numeracy and researching the factors that make this;
- Identifying which contexts are relevant and meaningful; and,
- Listen to the questions Indigenous students are asking while they're working mathematically as this will help to understand the strategies and skills to be used.

In my view numeracy needs to be given special attention for it is just as important as literacy in that the skills it provides have an important bearing on future life skills, further study and employment opportunities. I have no doubt that teachers would welcome more information about what works in numeracy curriculum and pedagogy.

Any future research cannot be simply an investigation of current practice, because most of our current practice has not made a significant difference. We need rigorous action research; trialling promising literacy and numeracy interventions across many sites, including careful investigation of processes and outcomes. Learning from such projects will enable us to make informed decisions about future funding and Indigenous Education policies. But as important, if not more so, is the need to find out more about contemporary cultural language and mathematical situations and practice will be of great use in teacher training and in-service programs.

Again I repeat our Advisory Committee's support of this research publication and hope that future research will be even more useful for teacher use.

Professor Paul Hughes AM, FACE

on behalf of the ACER Aboriginal and Torres Strait Islander Education Advisory Committee. The members were: Ms Isabelle Adams, Ms Wendy Brabham, Mr Peter Buckskin, Mr Arthur Hamilton, Ms Maria Stephens, Ms Dale Sutherland, Dr Margaret Valadian and Mr Shane Williams.

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In January 2000, ACER and a team of Aboriginal consultants commenced work on a longitudinal research project, which followed the progress of a group of Aboriginal and Torres Strait Islander students in 13 schools around the country during their early years of schooling.

The time commitment from each of the schools meant that their participation in this project was no small task. Members of the research team visited each of the schools on a number of occasions and conducted interviews with principals, teachers, Aboriginal and Torres Strait Islander Education Workers, Indigenous tutors and other members of the school communities, including parents. The data that they gathered through interviews and observation were supplemented with English literacy and numeracy assessments that were conducted with the students each year. The research team members who were involved in visiting schools collecting data and providing reports from those schools were: Isabelle Adams, Pat Cummins, Paul Hughes, Natascha McNamara, Lee Simpson, Maria Stephens, Margaret Valadian, Mara West and Davina Woods.

The guarantee of anonymity means that the schools, and participants, are not named in this report. However, we are indebted to them for sharing their stories and insights. And we are indeed indebted to the students for their ongoing involvement in the project and their parents for giving their permission to participate in the assessments.

We hope that this report highlights the significant contribution made by those who take that extra step to contribute so positively to the lives of their students. And we hope that we have challenged others to embark on a process of reflection on what they might do to improve teaching and learning in their schools so as to provide optimum learning contexts students in their schools, to meet the learning needs of all students but particularly Indigenous students and students from disadvantaged backgrounds and minority groups.

We would also like to thank members of the ACER Aboriginal and Torres Strait Islander Education Advisory Committee. Committee members are Isabelle Adams, Wendy Brabham, Peter Buckskin, Arthur Hamilton, Paul Hughes (Chair), Maria Stephens, Dale Sutherland, Margaret Valadian and Shane Williams

From 2000-2002 members of the research team have included Isabelle Adams, Matthew Corrigan, Pat Cummins, Nicole Fleming, Tracey Frigo, Paul Hughes, Natascha McNamara, Lee Simpson, Maria Stephens, Margaret Valadian, Mara West and Davina Woods.

EXECUTIVE SUMMARY

For many years, the improvement of educational outcomes for Australian Indigenous peoples has been an issue high on the political agenda. The emphasis on monitoring student educational outcomes Australia-wide through state-wide testing has generated a wealth of data which has enabled systems to monitor the extent of educational inequities experienced by Indigenous students. Despite some improvements over time, national schools statistics point to a continuing gap in the average English literacy and numeracy achievement of Indigenous students when compared with non-Indigenous students at Year 3.

A longitudinal study by the Australian Council for Educational Research (ACER) has been monitoring growth in the English literacy and numeracy achievement of a group of Indigenous students through the early years of primary school prior to Year 3. Qualitative data collected during these years provided an opportunity to explore the learning contexts experienced by the students and other factors associated with growth and achievement. The study was initiated by ACER's Aboriginal and Torres Strait Islander Education Advisory Committee and funded through ACER's core research program.

The 13 schools that participated in the project all had significant numbers of Indigenous students in their school populations and were nominated on the basis that they were recognised for initiatives and programs that they had in place to support their Indigenous students. Many of the schools in this study had been publicly awarded for their efforts.

The students commenced school in 2000 and completed English literacy and numeracy assessments in 2000, 2001 and 2002. Indigenous researchers visited the schools and conducted interviews with members of the school communities including principals, Indigenous and non-Indigenous educators and parents. This report contains an analysis of the quantitative and qualitative data collected during this phase of the project.

Student Achievement

The students who participated in the study came to school with a range of skills and experiences, as demonstrated by their results on the English literacy and numeracy assessments. As a group, they demonstrated a consistent pattern of growth in English literacy skills across time. Whilst there was consistent growth, this was not at the same rate compared to a larger group of mainly non-Indigenous students who had completed the same assessments in another longitudinal study.

The students responded particularly well to the first four sets of numeracy assessments, in Years K and 1. They achieved at a higher average level on one of the assessments than the larger group of mainly non-Indigenous students; however, growth in achievement slowed considerably by Year 2. Students from the more remote schools performed well on the numeracy assessments, as did students whose home language or dialect was not standard Australian English.

Some of the factors that were statistically associated with achievement included:

- *school* - analysis of the data suggested that the students' school accounted for much of the variation in achievement; the sample was too small to determine the extent to which this might have been related to classroom or teacher related factors;
- *region* - students who attended schools from metropolitan and regional areas generally achieved at a higher level than schools from the more remote and very remote areas; however, between school differences were greater than regional difference;
- *initial achievement* – student performance on the first assessment was the strongest predictor of their subsequent achievement;

- *language background* - students who spoke standard Australian English at home consistently achieved at a higher level than those who did not; students who spoke an Indigenous language or Torres Strait Islander Kriol at home achieved at a comparable level on the numeracy assessments end of Year 1 and in Year 2;
- *attendance* – students who had higher attendance rates achieved at a higher level; students from the more remote schools and those who did not speak standard Australian English at home reported lower average attendance rates; attendance patterns tended to be consistent across time; and
- *attentiveness* - students who were rated as more attentive in Year K achieved at a higher level on both English literacy and numeracy in Year 2 and ratings of attentiveness were consistent across time.

Factors that were not associated with achievement for this group of students included gender, age, mobility and enrolment at pre-school. This group of students was fairly uniform in having been enrolled at pre-school and remaining at the one school during the time of the study so these findings were not unexpected.

Learning contexts

The quantitative data analysis focussed mainly on student level factors associated with growth and achievement; the visits to schools provided an opportunity not only to explore these factors in greater depth, but to identify other factors related to learning that are not as readily quantifiable and to describe the social and cultural contexts of learning for these students in their initial years of schooling. Case study reports were analysed and the following aspects of school and classroom learning contexts emerged as key themes:

Cultural diversity and inclusivity

As all schools were nominated to participate in the study on the basis of the positive work that they were seen to be doing with their Indigenous students, it was not surprising that at a school level, there was a recognition, and often celebration, of Indigenous cultures and linguistic diversity. This was seen not only to benefit students in the classroom but was valued by the Indigenous communities and facilitated positive school-community partnerships. Where this operated most effectively, the cultural and linguistic diversity was also acknowledged in classrooms and was reflected in teaching practices; for example, the provision of contextually and culturally relevant pedagogies; and explicit teaching strategies which recognised and valued home languages and dialects other than standard Australian English.

Literacy and numeracy programs

The implementation of structured and focused externally developed English literacy programs, or of programs designed by the school in response to students' learning needs, often accompanied by professional development, provided a common goal and language for teachers to talk about and reflect on their literacy teaching. The same type of focus was not evident for numeracy although there was remarkable consistency across schools in their approach. The involvement of both Indigenous and non-Indigenous educators in these programs had many benefits for students.

School-community partnerships

Senior staff at the schools and Indigenous community leaders played an active and leading role in encouraging community involvement and support in the school. Where this operated most effectively, it was also reflected in the classroom through clear home-classroom links, a two-way dynamic where teachers made learning contextually relevant to students' home lives and parents and care-givers were actively involved in their children's school education. Indigenous people

working in professional and para-professional capacities in the schools facilitated these relationships.

Enabling factors

Throughout this project, members of the research team met in person and via teleconference to identify key areas for further investigation and as a means of cross-referencing case study findings across schools, across time, and with the findings from the quantitative data analysis. A final meeting in 2003 provided current team members with an opportunity to examine the results from the data analysis and to reflect on these in the contexts of their experiences at the schools.

Whilst all of the schools were engaged to some degree in programs and activities that were aimed at supporting Indigenous students, the research team identified some as appearing to be more successful than others; this coincided with the assessment data which pointed to a trend in some schools for the average growth in student achievement to be slightly higher than in others.

Whilst reflecting on the characteristics of these schools, the researchers primarily drew on their experience schools as educational researchers; however their considerable and long associations with schools and education systems as Indigenous people, including, as students, educators and parents provided an important context to inform their observations and provided an added dimension for interpreting the data. Some of the key factors that were identified as important underlying dimensions in the enabling success outcomes at the schools were:

- *leadership* – while leadership styles differed considerably, the schools that were seen to be more effective were those with a strong leadership that was inclusive and pro-active in engaging Indigenous leaders, which variously included Aboriginal and Torres Strait Islander Education Workers (AIEWs), Aboriginal Student Support and Parent Awareness (ASSPA) Committee members, care-givers or other members of the Indigenous communities.
- *attendance and engagement* – a crucial part of moving students along a learning continuum was that they attended school on a regular basis. However, whilst at school it was crucial that they were engaged in productive learning experiences.
- *good teaching* – good teachers of white middle-class students are not necessarily good teachers of Indigenous students. Good teaching of Indigenous students was observed when teachers truly connected with them, often in a way that was consistent with an early childhood education philosophy.
- *Indigenous presence in the school* – the involvement of Indigenous people at the school in a range of capacities, both employed and voluntary, increased parents and positive perceptions of the school. Their presence was an important factor for some parents, knowing who was there to ‘watch over’ their children, rather than entrusting ‘the system’ with this responsibility.

1. INTRODUCTION

THE CRITICAL EARLY YEARS

Whilst most Australian children get off to a good start in life, national statistics present a different picture for many Australian Indigenous children¹. National indicators relating to health, education, representation in foster care, contact with the criminal justice system, employment and expected lifespan show less favourable outcomes for Australian Indigenous children than for other Australian children. Due to higher birth rates and earlier death rates, Australian Indigenous children aged 0 to 14 years make up 39% of the Australian Indigenous population (Commonwealth Taskforce on Child Development Health and Wellbeing, 2003).

Children's learning experiences in the early years play a crucial role in setting foundations for lifelong learning and engaging parents in a lifelong relationship with their children's education. Educational experiences that support children to develop a strong self-identity are fundamental in establishing positive attitudes to self, as an individual and as a learner, and in developing future attitudes to schooling (Siraj-Blatchford and Clarke, 2000). Adams (1998) has argued that the poor educational outcomes of Indigenous students apparent in upper primary/lower secondary school are symptomatic of inadequate educational progress in the early years of schooling.

The nature of educational experiences for Australian Indigenous children in the early years has been highlighted recently in a series of reports to an Indigenous Education Taskforce set up by the Ministerial Council for Education, Employment, Training and Youth Affairs (2000a, 2000b, 2000c). The reports note that while there have been some improvements in educational outcomes for Australian Indigenous students in recent years, substantial gaps remain in educational access, participation and achievement of Indigenous students compared to non-Indigenous students. These differences emerge in the early years (0-8 years) and underlie continuing inequity at other major educational milestones.

In the early childhood years (0-8 years), Indigenous students are less likely to participate in preschooling than their non-Indigenous peers, they have higher rates of absenteeism beginning in primary school, and the early indications of their educational achievement, as measured by state-wide English literacy and numeracy assessments at Years 3 and 5, indicate that, as a group, they perform at a lower level compared to their non-Indigenous peers (MCEETYA, 2000a). Yet research indicates that the gap between Indigenous and non-Indigenous students prior to school entry is small enough to be statistically insignificant (Raban et. al., 2002).

While there has traditionally been a focus on educational outcomes for students towards the end of schooling, there is need to recognise the importance and equal status of each stage of schooling; the inter-relatedness of all stages and the responsibility incumbent in each stage to ensure a student's satisfactory progression during that stage and into the next. Hence the focus of this study is on the experiences of a group of Indigenous children in their early years of schooling.

EDUCATIONAL OUTCOMES FOR INDIGENOUS STUDENTS

The role that education plays in setting the scene for individual life chances is becoming increasingly important in the 'information age'; its significance for Indigenous Australians is even greater. A study by Hunter (1997) found education to be the largest single factor associated with improving employment outcomes for Indigenous Australians and reducing rates of arrest. Education in the 21st century is not just about gaining basic literacy and numeracy skills but about developing a range of skills and attitudes which are desirable for life in the 'information age', to cope with demands of ever-changing workplaces and to be able to fully enjoy life and participate as a citizens in a global world.

¹ 'Australian Indigenous peoples' refers to both Aboriginal and Torres Strait Islander peoples.

While in recent years there have been some gains for Indigenous students in access and participation in education programs, this increase has been in the context of an overall increase in participation for all students: a significant gap in educational outcomes for Indigenous students and non-Indigenous students remains.

This gap presents itself as early as pre-primary and is evident at all major milestones throughout the compulsory school years and beyond. As students progress through to secondary schooling, the heavier emphasis on tertiary entrance requirements, highly centralised and less flexible courses and the need to cover enormous amounts of content leads to a school structure and teaching style from which many students quickly become alienated. In 1998 only one in three Indigenous students remained at school until Year 12.

Significantly greater numbers of Indigenous students than non-Indigenous students have low literacy and numeracy levels, leave school earlier, and are unemployed. Indigenous students are less likely to enrol in pre-primary programs, participate in programs for gifted and talented students, complete Year 12 or participate higher education courses. While many enrol in TAFE courses, enrolments are generally in lower stream courses (DEST, 2002).

Hence, this study aimed, from both a quantitative and qualitative perspective, to consider the full range of factors that may contribute to the differential performance of Indigenous students in the early years of schooling. These early years are seen as formative; patterns began in this period of development can set the course of future development not only in term of achievement but also health, economic wellbeing and self-esteem (Malin, 2002).

POLICY RESPONSES

In 1999, the Adelaide Declaration on National Goals for Schooling in the Twenty-First Century (MCEETYA) stated that schooling should be socially just, so that:

students' outcomes from schooling are free from the effects of negative forms of discrimination based on sex, language, culture and ethnicity, religion or disability; and of differences arising from students' socio-economic background or geographic location;

and that

Aboriginal and Torres Strait Islander students have equitable access to, and opportunities in, schooling so that their learning outcomes improve and, over time, match those of other students.

Successive Aboriginal and Torres Strait Islander Education policies have called for equal educational outcomes for Indigenous peoples and suggested a multitude of strategies and benchmarks for achieving this.

In 1995, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) endorsed the *National Strategy for the Education of Aboriginal and Torres Strait Islander Peoples (1996-2002)*. The strategy contained a set of priorities identified for action to ensure equitable outcomes for Indigenous students in terms of access, participation and outcomes across educational and training services. It emphasised the importance of culturally inclusive curricula, pedagogy and assessment practices, and the participation of Indigenous people as decision-makers in educational policy.

In 2000, the Commonwealth government released the *National Indigenous English Literacy and Numeracy Strategy 2000-2004*, endorsed by Commonwealth, State and Territory Education Ministers, which identifies six key areas as target areas for additional funding to enhance literacy and numeracy learning for Indigenous students. The selection of these particular areas for further funding was largely based on a recent evaluation of the Indigenous Education Strategic Initiatives Programme (IESIP) Strategic Results Projects by McRae et al (2000) and include:

- lifting school attendance rates of Indigenous students to the national level;
- effectively addressing their hearing and other health problems;
- providing, wherever possible, preschooling opportunities;
- training sufficient numbers of teachers in the skills and cultural awareness necessary to be effective in Indigenous communities and schools, and encouraging them to remain for reasonable periods of time;
- ensuring that the teaching methods known to be most effective are employed; and
- instituting transparent measures of success as a basis for accountability for schools and teachers.

The strategy makes clear that schools must be a place where all Indigenous Australians feel secure and welcome. Schools must understand, acknowledge and try to accommodate to Indigenous Australians' cultural ties and traditions, particularly moving around to access family and land.

At the same time, the MCCEETYA Taskforce on Indigenous Education identified the extent to which State and Territory Indigenous Education Policies were being successfully implemented. The Taskforce found that a number of factors were impeding progress, including:

- a perception in some sections of the community that 'the gap' is normal;
- low expectations for Indigenous students;
- education for Indigenous students not being seen as core business and Indigenous programmes marginalised as a consequence;
- Indigenous educators being denied access to facilities and services given to others (particularly in-service education);
- initiatives to promote educational outcomes for Indigenous students were not systematically implemented;
- a failure to address cross-portfolio issues (eg poverty, health, housing, legal); and
- a need to improve the way in which schools work with Indigenous students and involve them in decision-making (MCEETYA, 2000a).

The Ministers recommitted themselves to the achievement of equal educational outcomes for Indigenous students as a national priority. They have since released the *National Statement of Principles and Standards for More Culturally Inclusive Schooling in the 21st Century* (MCEETYA, 2000b) in which they emphasised the importance of curriculum which:

- (i) *is free from the negative forms of discrimination based on sex, language, culture and ethnicity, religion or disability; and of differences arising from Indigenous students' socio-economic background or geographic isolation,*
- (ii) *allows Indigenous students to share in the same educational opportunities experienced by other Australian students and at the same allows them to be strong in their own culture and language and reposition their cultures, languages, histories, beliefs and lifestyles in a way which affirms identity and the ability to operate in cross-cultural situations,*
- (iii) *supports all students to understand and acknowledge the value of Aboriginal and Torres Strait Islander cultures to Australian society and possess the knowledge, skills and understanding to contribute to, and benefit from, reconciliation between Indigenous and non-Indigenous Australians.*

The Ministers also released a *Model of More Culturally Inclusive and Educationally Effective Schools* (MCEETYA, 2000c), which noted the importance of a:

dynamic and responsive curriculum that contributes to the development of essential knowledge, skills and attitudes in all students and builds on their capacity to view the world critically and to act independently, cooperatively and responsibly [and that effectively responds to the] needs, interests and concerns of students, with appropriate use of explicit teaching, self-directed learning and emerging technologies.

These statements provide an important framework for ideas and understandings that need to be reflected in classrooms and against which the schools in this study can be compared. The research literature suggests that when culturally inclusive curricula and pedagogy are adopted by schools and teachers, and delivered in a way which accounts for the diversity of student backgrounds and starting points, and when formative assessment (which is culturally and contextually appropriate) is used to rigorously monitor student progress, the achievement of Aboriginal students improves significantly.

BACKGROUND TO THE PROJECT

Prior to the commencement of the longitudinal study described in this publication, researchers at ACER conducted a project which explored the English literacy learning experiences of Indigenous students in 12 primary schools in Queensland, Western Australia, New South Wales and the Northern Territory. These schools were identified as ones in which programs had been introduced to enhance the literacy development of Indigenous students. A group of Year 3 and Year 5 Indigenous students were targeted in each school. The students' principals, teachers and Aboriginal and Torres Strait Islander Education Workers (AIEWs)² were interviewed by two Indigenous consultants about the ways in which they attempted to provide effective learning environments for their Indigenous students. As well, the students completed English literacy assessments, which had been used in the National Schools English Literacy Survey (NSELS).

Findings from the study highlighted a number of teaching practices as ones, which schools and teachers should consider when working with Indigenous students. These included: modelling standard Australian English and explicitly teaching children to code-switch between languages and dialects; understanding students' cultural and social backgrounds and being able to employ appropriate teaching strategies; providing training and support for AIEWs; and schools and parents working in partnership to provide environments where students could consistently attend and productively engage in educational opportunities. Findings from the study are reported in the ACER monograph *Enhancing English Literacy Skills in Aboriginal and Torres Strait Islander Students: A Review of the Literature and Case Studies in Primary Schools* (Batten, Frigo, Hughes and McNamara, 1998).

The Indigenous students in the study by Batten et al, (1998) achieved at a higher level than a special sample of Indigenous students who had completed the assessments in the NSELS project (Masters and Forster, 1997), which seemed to justify the selection of the 12 schools as ones in which successful teaching practices were occurring for Indigenous students. However, their achievement was, on average, lower than non-Indigenous students. This gap mirrors results reported in State-wide English literacy assessment tests; Indigenous students achieve at significantly lower levels than non-Indigenous students by the time they reach Year 3, the gap increases for many by Year 5.

The research data which reports on Indigenous students' educational outcomes is mainly cross-sectional and growth trajectories are implied by comparing the achievement of different cohorts at one point in time. A longitudinal research project would provide a more informative and richer

² Within this paper, the abbreviation AIEW is used to refer to Australian Indigenous people employed by schools in a para-professional capacity to support the education of Australian Indigenous students.

picture of development trajectories in the early years of Primary School. Further, such research could explore educational opportunities offered to Aboriginal and Torres Strait Islander students as they unfold.

Consequently, the ACER Aboriginal and Torres Strait Islander Education Advisory Committee suggested a longitudinal project, which would follow one group of students from school entry through the early years of schooling and beyond. Accordingly, the ACER Longitudinal English Literacy and Numeracy Survey for Indigenous Students was established in 2000 to:

- identify and monitor development in Indigenous students' English literacy and numeracy skills in the first years of schooling;
- to measure growth in English literacy and numeracy skills over time;
- and investigate the factors which may be associated with development of the child's English literacy and numeracy skills, including effective teaching and learning practices as well as factors beyond schooling.

The current paper provides an insight into the longitudinal study after two years.

OUTLINE OF THE REPORT

Following this introductory section, Section 2 of the report details essential features of the research design and methodology. A description of the main characteristics of the school communities that participated in the study is presented in Section 3, along with individual school profiles. The next two sections describe findings from the data analysis. Section 4 presents the results of the student assessments in English literacy and numeracy achievement and factors associated with growth in achievement from 2000 to 2002. Section 5 describes student-learning contexts at both school and classroom levels which an emphasis on the types of environments which more effectively support learning. Section 6 attempts to draw together some of the essential aspects of the study and indicates future directions for research.

2. DESIGN OF THE RESEARCH

SAMPLE

Selecting the Schools

State and Territory Education departments were invited to nominate schools with more than five Indigenous students in their first year of schooling and which were acknowledged to have an explicit focus on supporting the learning of their Indigenous students in the early years. The final sample of 13 schools included sites in metropolitan, regional and remote areas of Australia, both large and small primary schools, and where Aboriginal students were sometimes in a majority or a minority. The students in the study came to school as speakers of Indigenous languages, Aboriginal English, Kriol and standard Australian English.

The Students

A sample of up to ten Aboriginal and Torres Strait Islander students in their first year of schooling at each of the schools was invited to participate. For schools that had more than ten Indigenous students in their first year of schooling, ten were randomly selected to participate. In 2000, the first year of the project, data was collected from a total 119 students. In 2001, the second year of the project, a number of students had moved and schools were invited to 'refresh' the sample where numbers in the study had dropped significantly. After the second year of the study, data had been collected from 147 students and 36 teachers. At the conclusion of 2002 the total number of students in the sample was 152 and the total number of teachers was 43. Mobility, absenteeism and the non-return of one set of the assessments by two of the schools meant that only 35 of the students had completed all five assessments; however, 111 of the students completed more than one assessment point.

COLLECTING AND ANALYSING THE DATA

The design of the study as a longitudinal one was intended to provide a picture of individual growth in English literacy and numeracy skills across time. Both qualitative and quantitative methods were used to collect data for the study. A series of assessment tasks provided an indication of the students' skill development, while case study visits to the schools enabled an exploration of the teaching and learning environments in which students developed these skills. The identification of effective school and teaching strategies was supported by evidence of growth in educational outcomes. ACER was responsible for coordinating the project and the English literacy and numeracy assessments, while a team of Indigenous researchers conducted the fieldwork.

Table 2.1 Timeline for data collection

	2000	2001	2002
Term 1 ³		Assessment 3	
Term 2	Assessment 1		Assessment 5
Term 3	School visit Questionnaires		School visit Questionnaires
Term 4	Assessment 2	Assessment 4 School visit Questionnaires	

³ This is only a general indication of timeline - the school year in Tasmania is divided into three terms; and there were delays, on some occasions, in case study visits and with schools returning completed materials to ACER.

English Literacy and Numeracy Assessments

Assessment tasks developed and used in the ACER Longitudinal Literacy and Numeracy Survey (LLANS) were used to provide a measure of English literacy and numeracy skill development. These tasks are set within a framework of developmental assessment and are sufficiently linked to allow student performance be reported on a common scale within English literacy and numeracy (Anderson and Meiers, 2001).

The LLANS assessment tasks were chosen for this project as being consistent with good assessment practice for Indigenous students: they are designed to take place in a meaningful context, based around familiar classroom activities, administered on a one-to-one basis, include many hands-on activities that use familiar classroom materials, they emphasise process as well as product and are in line with State/Territory curricula. The Indigenous Parent-Liaison Officer who administered the assessment at one school described them in these terms:

The way the tests are set out is basically straight forward and the kids enjoy doing it...There's two girls and one boy who don't like change around them. They are used to me and they think the testing is fun so it's not a stressful situation for them. We come in, we play, we sit there, they see me give them a tick. I tell them at the start, "I'm gonna give you a tick beside your name." So they think it's a game and it is. It's having that person they identify with. The majority aren't my relations but they all call me "Aunty", and it's a first name basis with me with the kids. They're relaxed...its fun, it's a game...[Indigenous Liaison Officer]

A further reason using the LLANS assessment materials was that they were also being used in another ACER longitudinal study conducted over a similar timeframe with over 1000 children. This much larger sample, referred to as the main LLANS sample in this report, provided a point of reference with which to compare the results of the relatively small sample of Indigenous students in this project.

The assessment tasks were administered at the beginning and at the end of each year in the first two years of the study and the middle of the third year. The timing of each assessment was based on the main LLANS study enabling comparison between Indigenous students and their non-Indigenous peers. The children worked one-on-one with, in most cases, either their teacher or AIEW who recorded their responses in booklets that were returned to ACER for data analysis.

Each set of LLANS assessment is composed of 5-6 short units, each consisting of approximately eight questions of a range of difficulty. Most of the tasks require students to answer questions orally, while teachers assess and record their responses. The literacy tasks were developed around phonemic awareness, concepts of print, reading fluency, making meaning from text, and writing. They include comprehension of the meaning of written and visual texts, knowledge of conventions of text, contextual understanding as well as mastery of various aspects of the mechanics of text decoding. Picture story books provided a context for activities relating to the child's understanding of text, and to prompt writing tasks. Students responded to writing and spelling tasks on the worksheets provided. The LLANS numeracy tasks assessed skills in number, space, measurement and chance and data. Where possible, hands-on aids such as rods, counters, shapes, coloured stars, pipe cleaners and matchsticks are used to support students in responding to the tasks.

The responses of students in the main LLANS study to the tasks were used to construct a scale that locates achievement against a statement of the skills typical of students at a range of levels of achievement (Meiers & Forster, 1999). The scale was devised using 'Rasch measurement techniques to display the performance of children and the difficulty of task on the same interval scale, in the same units of measurement' (Stephanou, Meiers & Forster, 2000, p.40). This produced a scale for English literacy and one for numeracy with the best student performances and the hardest tasks at one end, and the poorer student performances and the easiest tasks at the other end. The use of common items across assessments enabled the calibration of all tasks to be displayed on the single scale.

School, Teacher, AIEW and Student Information

Questionnaires were used to enable a consistent collection of background data across schools. They were mainly completed by principals and the teachers of the students in the study, and were either mailed or delivered to the school during the school visits in 2000, 2001 and 2002.

Data collected from the principal's questionnaire provided information about the percentages of Indigenous students and students with language backgrounds other than English, as well as a description of the general characteristics of the student population. Information was also collected about English literacy and numeracy programs used across the school, any additional support provided to students in literacy and numeracy sessions, and additional support provided to students with special needs. In 2003, principals were asked to elaborate on the strategies they used to welcome parents/caregivers into the school and to involve them in their child's education.

Teachers provided information about their years of teaching experience and of working with Indigenous students, the percentage of Indigenous students and students with language backgrounds other than English in their classes, whether they taught in a multi-age classroom and if other teachers also taught their students. Teachers were asked to outline their approach to teaching both English literacy and numeracy and to list the resources and support personnel. They were asked to list any professional development they had undertaken in recent years and to nominate the course which had had the most influence on their teaching. In 2002, teachers were asked to provide information about the average time that was dedicated to English literacy and numeracy sessions and at what time of day these sessions took place.

In addition to providing information about themselves, teachers were asked to complete student questionnaires. Data collected from these questionnaires provided information about each student's age, gender, main language/dialect spoken at home, preschool experience, attendance, attentiveness in class and general achievement. Teachers were also asked to indicate if the student had any special needs, including physical and/or learning disabilities, and whether they received special education support in the classroom. In 2000, teachers provided information about parents' occupations. In 2001 this question was replaced with one which asked teachers to rate the student's level of English literacy and numeracy achievement against State Curriculum Standards and against their peers in the classroom.

In 2002, a separate questionnaire was given to AIEWs which asked them about their experience in schools, involvement in professional development activities, the type of work they were involved with across the school and in classrooms.

Case Studies

Indigenous researchers conducted the fieldwork and all had extensive connections across Indigenous communities. Each school was visited by a member of the research team on a number of occasions (from two to four days each year) and information was collected about the school, the students' classroom environments and their communities. Data were collected through interviews, school documentation, and classroom and playground observation.

Interview schedules were developed and discussed by the research team and sent to school prior to the school visits, facilitating a consistent approach to school visits between researchers and across sites. Interviews with principals, teachers and AIEWs aimed to explore how Indigenous languages and cultures, English literacy and numeracy skill development, and student participation are supported at the school. Some of the key areas discussed included:

- recognition of Indigenous languages and cultures in curriculum, pedagogical practice, and assessment procedures;
- teachers' understanding of the ways in which their students learn, pedagogical practices and beliefs, with particular emphasis on developing English literacy and numeracy skills;

- the extent to which teachers and AIEWs are supported and encouraged to engage in training and professional development;
- the ways in which AIEWs work in classrooms and with their local communities; and
- the ways in which the school and individual teachers have involved parents/caregivers in their children's education and established partnerships with local communities.

In 2003, the interview questions were reduced in number and more focussed to encourage teachers, principals and AIEWs to reflect specifically on issues of diversity and inclusiveness, how they facilitated links between home and school, and to identify what they thought to be the most crucial aspects of effective teaching practice, rather than the breadth of what they did. Where possible, there was also a greater emphasis on interviews with Indigenous education workers and parents.

Each researcher wrote detailed reports on their school visits which were returned to ACER for analysis, along with questionnaires which had been completed at the schools and in some instances notes, tapes and transcripts. Significant themes were identified and analysed alongside the quantitative data collected through the assessment tasks.

To facilitate a thorough analysis of a considerable collection of documentation across the three years of the study, QSR NVivo, a qualitative data analysis program (QSR International, 2000) was used to identify and analyse significant themes (eg recognising culture; parental involvement; absenteeism). Each of the themes was coded within the text of the reports and other documentation such as transcripts to facilitate the cross-referencing of data across sites and across time. The themes were coded at three levels; school; classroom and student.

SUMMARY

The project followed the progress of a group of Indigenous students through their first three years of school. Thirteen schools, nominated by Education Departments, agreed to participate in the study. Up to ten Indigenous students at each site, who commenced school in 2000, formed the student sample. The schools were situated in urban, rural and remote areas of Australia. The percentages of Indigenous students at the schools ranged from almost 100 per cent to 5 per cent.

Both qualitative and quantitative data were collected. The students undertook English literacy and numeracy assessments each year to provide an indication of their skill development. Principals and teachers completed a series of questionnaires about themselves and their students, and a team of Indigenous researchers visited the schools to explore the learning contexts experienced by the students.

These data provide the basis for a unique exploration of growth in both English literacy and numeracy skills across time along with some of the factors associated with school and classroom learning environments that influence growth.

3. THE SCHOOLS AND THEIR COMMUNITIES

An important part of this longitudinal survey was the collection of data which would describe the school learning contexts which the students experienced. This information was collected through standardised questionnaires given to each of the school principals and through the interviews and observations of the research team as they made their annual visits to the schools. These data proved a rich backdrop against which the analysis and interpretation of the individual students achievement data.

THE SCHOOLS

All of the 13 schools in the project were government schools with at least one from each State and Territory: five schools were located in metropolitan areas (all capital cities), four were in large regional centres (including one capital city), two were in smaller more remote towns and two were in very remote areas⁴. All of the schools had at least five Aboriginal and/or Torres Strait Islander students in the first year of schooling in 2000; however, proportions of Indigenous students compared to non-Indigenous students varied greatly across the schools (between 5 per cent and 100 per cent). A summary of some of the characteristics of all of the schools is presented below in Table 3.1. Table 3.1 also indicates that the schools adopted a range of approaches to literacy and numeracy. *Reading Recovery* (intended as an individual intervention) was present in seven schools. Western Australian *First Steps* was used in eight schools (and was the most prevalent nominated approach) but one school made use of an explicitly phonics-based program.

Table 3.1 School background information reported in 2000

School	Area	Sch Popn	Ind %	Ind LBOTE ⁵ %	LBOTE %	Literacy approach	Numeracy approach
1	Regional	500+	61+	21-40	11-20	Walking Talking Texts, Reading Recovery	Concrete activities; focus on language
2	Remote	309	41-60	21-40	1-5	1st Steps; ESL classes; Reading Recovery	Rigby resources with hands on support
3	Metro	731	6-10	0	21-40	Early Years Literacy Prog; Reading Recovery	Count Me in Too K-1
4	Remote	370	41-60	6-10	1-5	1st Steps (Scaffolded Literacy Program in 2001)	State curriculum
5	Regional	409	21-40	missing	0	Early Years Literacy Prog; Reading Recovery	State curriculum
6	Very Remote	255	61+	61+	0	Walking Talking Texts	State curriculum linked with literacy
7	Metro	268	21-40	0	0	PASS, phonics-based program & Reading Recovery	State curriculum
8	Very Remote	75	61+	61+	0	ESL based; also 1st Steps and the Early Years Literacy Program.	Practical with emphasis on Mathematical literacy.
9	Regional	80/445	21-40	1-5	1-5	1st Steps; Reading Recovery	State curriculum amended to local context
10	Regional	43/220	21-40	1-5	21-40	1st Steps; school designed literacy program (inc phon. awareness', motor sensory devp); ESL	State curriculum with Rigby resources
11	Metro	100	11-20	0	1-5	1st Steps	Based on NSW Signpost
12	Metro	415	11-20	11-20	21-40	1st Steps; Reading Recovery; school-designed program based on Scaffolded Literacy	State curriculum guidelines
13	Metro	274	21-40	21-40	11-20	1st Steps; strong oral language component.	Hands-on, concrete materials, activity based program P-3

⁴ Schools were categorised based on their remoteness using the Accessibility/Remoteness Index of Australia (ARIA), developed by the Australian Bureau of Statistics (Department of Health and Aged Care, 2001)

⁵ Language Background Other Than English

The areas in which the schools are located had a number of characteristics in common, including the fact that all had significant local Indigenous populations. Many of the areas were described as economically depressed with high unemployment rates and a significant proportion of both single parent and highly transient families, both Indigenous and non-Indigenous. Transience was attributed to employment, housing needs and moving on from situations of domestic violence, as well as for cultural reasons in the case of some of the Indigenous families. School principals when asked to describe their respective school populations commonly mentioned these aspects of the local communities. It is acknowledged, however, that there is also considerable variation in the extent to which both Indigenous and non-Indigenous families fit this profile.

A number of the communities were described as multicultural, with significant numbers of families coming from a range of cultural and linguistic backgrounds, both non-Indigenous and Indigenous. For example, some of the Indigenous families were long-term residents of a town across a number of generations while others had recently arrived more recently from more remote areas. There was also diversity within Indigenous communities in the number of languages and dialects of English spoken, which included standard Australian English, Aboriginal English, Kriol and Indigenous languages.

The extent of community involvement in the schools varied somewhat. There is always a percentage of families who, for various reasons, are less obviously active in the school lives of their children, both Indigenous and non-Indigenous. However, in all of these schools there was a concerted effort on the part of a core group Indigenous and non-Indigenous people in the school community to establish effective working partnerships and to maximise the learning opportunities for the Indigenous students.

A more detailed profile of each of the schools follows, along with information about the local communities and the ways in which they interact. All participants in this study were guaranteed anonymity; consequently, none of the schools are identified by name or region. ACER's Aboriginal and Torres Strait Islander Education Advisory Committee felt that the intention should be for the reader to focus on the issues and themes raised in the report rather than particular locations.

INDIVIDUAL SCHOOL AND COMMUNITY PROFILES

School 1

School 1 is situated in the suburb of a large regional centre, which has a significant population of Aboriginal and Torres Strait Islander families. The community is considered to be of low socio-economic background, with high levels of unemployment. Family structures included single parent, blended and extended families who mainly live in low cost or state housing. The area is undergoing a rejuvenation programme, which includes the renovation of state housing. The Indigenous families are mostly urban based, although there are some families who have moved from remote communities to settle in the area and speak Indigenous languages at home. Many families speak a number of languages including standard Australian English, Aboriginal English, Torres Strait Islander Kriol and Indigenous languages.

Four or five years ago Indigenous students were in the minority at this school but in 2002, 78 per cent of the school's population of over 530 were Aboriginal and/or Torres Strait Islander students. A strong Indigenous presence among staff members at the school was notable. Some years ago plans were set in place to increase the Indigenous presence at the school with familiar faces and languages. Currently, there are four Indigenous teachers, one Indigenous preschool teacher, 10-12 ATAS⁶ tutors and other non-teaching Indigenous staff.

⁶ Aboriginal Tutor Assistance Scheme (Commonwealth funded program)

Respect for culture and language was a consistent theme in conversations with teachers at the school. The ESL teacher at the school, a non-Indigenous woman who had considerable experience working with remote communities, had a significant influence on the teaching practices of her colleagues and was well regarded by both teachers and parents. Her approach to recognising and building on students' diverse language backgrounds is based on *FELIKS* (Fostering English Language in Kimberley Schools) (CEO, 1994), which identifies explicit teaching strategies that support speakers of Aboriginal English, Kriol and traditional Aboriginal languages to learn standard Australian English as their second language.

School 2

One of the two remote schools in this project, School 2 has a school population of around 310 students; approximately half are Indigenous and between 20 and 40 per cent speak a language other than English. The students come from a broad socio-economic background ranging from unemployed to double income families. Most of the students live in the town while others travel to school from two remote Aboriginal camps. Transiency and absenteeism are issues with some students – particularly those from the remote camps who travel to school via a one-hour bus trip each day.

The school has been acknowledged for the work that it has done to improve student attendance, particularly through its two mobile preschools. The preschools, which operate from the school, led to improved attendance rates from students in their initial school years. The flow-on from access to preschooling was reported to have led to an increase in attendance in the first year of school from 30 per cent to 65 per cent in two years. Even so, some of the students who were participants in the longitudinal study were reported to have substantially high levels of absenteeism.

There was strong support from the families who sent their children to the school. They believed that the school's small size was important in enabling it to accommodate to the needs of its Indigenous students. Some of the students were reported to have substantial needs and the school is supportive of them through its pastoral care program and the use of ASSPA⁷ funds which contribute to the provision of lunches and uniforms. Many of the older and longer serving staff members had developed good relationships with the Aboriginal community. There was one Indigenous teacher at the school as well as an AIEW⁸.

School 3

School 3, situated in a major metropolitan city, is the largest of the schools surveyed with a total population of 750 students in 2002. Between 6 and 10 per cent of the students are Indigenous and between 21 and 40 per cent of all students come from language backgrounds other than English. Many students were from a low socio-economic background and around 25 per cent of the school's population were considered to be highly mobile.

An overall increase in enrolment of Aboriginal students at the school from 30 to 100 during the time of the current principal reflects the efforts put into developing a positive relationship between the school and Aboriginal community. Senior staff and the AIEW regularly visited Aboriginal families and demonstrated an intimate knowledge of the students' abilities, learning needs and backgrounds. The AIEW played a significant role in the success of Aboriginal children at the school and influencing the ways in which the school supports the students. The respect and support given to the AIEW from the senior staff and teachers was notable.

The *Early Years Literacy Program* is the main approach to literacy in the school, while *Count Me In Too K-1* was the basis of the school's approach to numeracy teaching. As well, the school runs a

⁷ Aboriginal Student Support and Parent Awareness Committee

⁸ Within this paper, the abbreviation AIEW is used to refer to Australian Indigenous people employed by schools in a para-professional capacity to support the education of Australian Indigenous students.

successful Behaviour Management Program, participates in a Commonwealth Tracking Program, has an Aboriginal Artist in residence and is trialling 'In Class Teaching' as an alternative to the Homework Centre. This latter program involves tutors going into classrooms to work alongside teachers so that all students have access to tutors, rather than just those who attend the Homework Centre. In 2002 there were 14 ATAS tutors at the school providing a total of 80 hours tutoring support to 40 students. The Aboriginal students at School 2 achieved well in State-wide literacy tests (higher than other Aboriginal students) and subsequently at the local high school.

School 4

The second remote school in the survey, School 4 had a school population about 370 students in 2000. With changing demographics in 2002 the enrolment had dropped to 290. However, the total number of Aboriginal students at the school remained stable so the proportion of Aboriginal students increased over this timeframe to make up around 50 per cent of the school population. In 2002, between 10 and 20 per cent of the Aboriginal students were reported to speak a language other than English.

The school population is made up of a diverse mix of cultural backgrounds. Some of the Indigenous students have lived in the town for many generations and mobility among these students is not an issue; others have moved from remote communities or outstations and live in town either with their families or in a foster care program. Around 30 of the students are bussed in from town camps. There are two preschools attached to the school – one on-site and one off-site in one of the town camps. Some students who come from outstations where there are no educational facilities live in foster care arrangements.

The principal has had a long association with Aboriginal education and he, along with other senior staff members, are involved with various community groups. There were three Indigenous teachers at the school in 2002.

In 2000, the main approach to literacy used at the school was *First Steps* but in 2001 the *Scaffolding Literacy Program* was introduced which was reported as showing initial signs of success. An ESL teacher and a home reader tutor who listens to children who don't get to read at home also support students. There is a Homework Centre at the school, ASSPA lunches and, for children with special academic and social needs, a STAR Centre Program.

School 5

Around 409 students attend School 5, which is situated to the north of a large regional city. The school population is a culturally diverse mix with around 25 per cent of students Indigenous. The families are mainly from low socio-economic background and around 25 per cent of the school population is transient over a 12 month period.

There is a relatively large local Aboriginal community in the area including long-term residents and those who have moved from interstate. Indigenous families at the school have the option of enrolling their students in a separate Indigenous Education Unit that operates at this school. There are two Aboriginal teachers at the school. The Unit is a focal point for parents of all Aboriginal students at the school – including those in the main school.

The main literacy program that operates at the school is the *Early Years Literacy Program*; the Indigenous Education Unit funds a *Reading Recovery* teacher. The school also has a strong commitment to integrating IT across learning areas with has computers in every classroom, a separate computer lab and a teacher employed at the school to work one-on-one with the Aboriginal students using IT. While there isn't a Homework Centre at the school, there is the opportunity for one-on-one tutoring during school hours and after school

School 6

School 6 is one of the two schools in the survey from a very remote area. The student population of this school is 255 and nearly all students are Indigenous (97 per cent) and speak an Indigenous language as their first language. The community is approximately 275km from a large regional city.

The School Council's major policy is that the school teaches English only. All teachers are ESL trained and there is an ESL specialist located in one classroom but available to support all teaching staff. Walking Talking Texts are used at the school and there is some awareness of the *Scaffolding Literacy Program*. In 2002 there was an intention to increase the emphasis on phonics. Numeracy teaching is linked closely with the literacy program. A mobile preschool operates from the school although it ceased operation for a period in 2002. As with many very remote schools, the high turnover of staff an issue for the community.

The current Principal is one of the key Elders in the community and takes a pro-active role to promote school and student needs and expectations to parents. She has very high expectations of her students and staff, as evidenced in her determination to participate in this research project, and is very explicit in demanding that teachers not drop their standards just because they are teaching in a community school - she wants to 'extend the students beyond their comfort zone' in learning. The school's weekly professional development sessions attended by both Indigenous and non-Indigenous educators, is a crucial strategy for planning, sharing, passing on what works, and encourages problem solving and group resolution for identified areas of difficulty.

School 7

The school is in a metropolitan area with between 250 and 270 students. The school's population is highly transient with a turnover of around 30 per cent of students each year. Around 25 per cent of students are Indigenous. There are a large number of young and single parent families in this community, which has the lowest median age in the state and one of the highest unemployment rates and lowest income rates. In 2000 the school population was the second highest in the state on the Educational Needs Index. Absenteeism is a large problem at the school with those with extensive absences falling behind those who are more regular attendees.

A range of programs was used to support students' literacy and numeracy development including PASS (Program of Additional Structure and Support), an explicitly phonics-based program and *Reading Recovery*. There are also intervention programs to aid specific students in their literacy and numeracy achievement. Two ATAS tutors work at the school working either on a one to one basis with students or assisting a teacher with classroom activities. The school employs an AIEW who focuses on building the relationship between the school and the community. Prior to 2002, Elders visited the school on an ongoing basis to teach craft and environment activities.

School 8

The second of the very remote schools in the survey, this is a small school of 75 students. The students come from a community situated on traditional lands 1000 kms north of a metropolitan city, where English is seldom used. The community is mainly made up of Indigenous people as well as some non-Aboriginal people who work for the community. The school is one of eight on the traditional lands and comes under the control of an Indigenous Education Committee.

The literacy program at the school is essentially ESL based but also utilises *First Steps* and the *Early Years Literacy Program*. Approaches to numeracy are practically based where possible with an emphasis on mathematical language. The preschool provides a valuable exposure to English and the school culture through a targeted literacy and numeracy program that aids the transition to school. The Indigenous Education Committee requires that the school curriculum focuses on teaching standard Australian English and doesn't include Aboriginal Studies per se.

School 9

School 9 is located in one of the northern suburbs of a regional centre; in 2002 almost half of the school population of over 500 students were Indigenous (a percentage which had substantially increased since 2000). The Indigenous parents who send their children to this school view it as the best government school for Indigenous students in the area, with some students travelling to attend the school from other suburbs.

The wider school community is a diverse mixture of cultural groups and families come from a range of socio-economic circumstances. Many of the Indigenous families are long time residents in the area although some have moved from remote communities to settle there. While the majority of students speak standard Australian English as their first language, many also speak Aboriginal English, Torres Strait Islander Kriol and Indigenous languages.

The Indigenous presence and level of engagement was also apparent through Indigenous staff in the tutoring program, the homework centre, an active ASSPA committee and four Indigenous parents on the School Council. The AIEW, also a School Council member, keeps a close check on attendance, liaising regularly with families and compiling statistics on Indigenous students every four weeks. In the time of the current principal, the enrolment of Indigenous students had increased significantly, as had Indigenous programs and events. In 2002 there were nineteen teaching and non-teaching Indigenous staff employed at the school. The principal is a strong advocate for Indigenous students, families and staff, and is a popular local identity, personally known to many Indigenous families both through the school and socially.

School 10

School 10 is a small school situated near a large regional city centre. The suburb was established in the mid 1960s with a state housing program and remains a low socio-economic area. There are 290 students at the school, an increase in enrolments since 2000, of which 35 per cent are Indigenous. Around 25 per cent of the whole school population are identified as speakers of languages other than English, that including a small percentage of the Indigenous students. The school population has a high mobility factor and many of the families are from a low socio-economic background. The average attendance of Indigenous students attendance is 90 per cent.

While some of the Indigenous students at the school come from the local area, others travel from two Aboriginal town camps. The school as developed a range of strategies to involve parents and communities in their students' school learning including class visits to one of the town camps, developing resources with one of the camps, producing 'moving books' on video and creating literacy backpacks for students.

The school has developed areas that students can use which are similar in design to Aboriginal meeting places. Students use these places throughout the day for recreational purposes and as outdoor classrooms. The ATAS tutors who work at the school are visible around the school throughout the day and there is constant adult supervision.

The school has received an award for its school-designed literacy program, which is reported to have significantly improved student reading levels over the initial years of its introduction. As part of the program which is integrated with *First Steps*, individual students are screened on an ongoing basis for oral language development, phonological awareness and development of perceptual motor skills. The program involves the active participation of teachers, speech pathologist and occupational therapist in the delivery of holistic programs for students.

School 11

School 11 is the smallest of the metropolitan schools in the sample. In 2000 there were 100 students enrolled at the school but in 2002 this had decreased to 80 students. The decline in student

numbers has caused difficulty within the school with a consequent pressure on resources. Approximately 7 per cent of the students are Indigenous. As much as 5 per cent of the school population speaks a language other than English; however none of the Indigenous students are reported as non-English speakers. The school is situated in a suburb marked by high unemployment, a transient population and a low socio-economic status. The Indigenous students, while highly mobile, were good attendees with very few days absent. To support Indigenous students an Indigenous Education Worker was employed on a part-time basis during the first two years of this study. In addition a range of community volunteers attended the school and provided one on one support by listening to children read and supervise group work.

The school uses a range of literacy and numeracy programs including *First Steps* and Signpost. There is also a heavy emphasis on behaviour management using a school designed behavioural management program that aims to improve reduce bullying and student conflict by improving students' social skills through role play. The school reports a high degree of behavioural disruption amongst its students. In 2002 the school was successfully trialling a health room which was visited by health professionals four mornings a week, including the doctor from the local Aboriginal Health Clinic.

School 12

School 12 is a metropolitan school with just over 400 students of which between 10 and 20 per cent are Indigenous. Half of the students in the sample spoke Aboriginal English as their main home language. The school has a high proportion of new arrivals and students who come from non-English speaking backgrounds. There is also a high degree of transience and mobility in the school population.

The school appears to have an open and relatively constructive relationship with the local Indigenous families, which has been largely facilitated by the diligence of the fulltime AIEW and a very active ASSPA. This relationship appears to have been maintained despite the high teacher turnover at the school. This school has a strong program in dance, cultural groups and a choir, all of which are well attended by the Aboriginal students, and enjoyed by the community. The school also has a strong emphasis on literacy adopting a range of programs including *First Steps* and *Scaffolding Literacy*. In addition the school developed the 'Deadly Writin', Readin' and Talkin' project which specifically targeted the literacy needs of Indigenous students. The school won a Literacy Award in the 2000 Excellence in Leadership in Indigenous Education Awards for this program which is based on *Scaffolding Literacy*. In terms of numeracy the school emphasises the need for concrete and hands-on tasks that utilise contextual situations.

School 13

The final school in this study is in a capital city and thus categorised as metropolitan. Many of the schools' 274 students come from single parent families, low socio-economic backgrounds and parents with poor educational backgrounds; this area is considered to be one of the most disadvantaged in the State. Between 21 and 40 per cent of the students are Indigenous and 20 to 40 per cent of these students speak Aboriginal English. Students come from a range of cultural backgrounds and between 11 and 20 per cent of students speak a language other than English. A high number of the students are mobile, with some attending more than four schools per year.

The students in this study came from the junior primary, which is located next to the primary school. The plans to amalgamate the two have concerned those parents who value its small size and more personal environment. As well as mainstream kindergarten, the junior primary also offers an Aboriginal kindergarten for four half days per week.

Overall, the school climate appears supportive of the Aboriginal students and their needs evidenced by the work of the ASSPA Committee, a Homework Class, a full-time AIEO, NAIDOC activities and PD for staff. The majority of Aboriginal students perform very well and are in the top 10% of

the school's population. The school prides itself on a 'hands on' approach to learning which is seen to be beneficial for all students, and especially Aboriginal students. They use the *First Steps Continua* and strategies; *Literacy Net* - class and individual profiles; strong oral language component Hands on, concrete materials teaching activities to build self-esteem and confidence especially in Years K-3; homework classes.

SUMMARY

A key feature of the schools that were nominated to participate in this study was their explicit focus on supporting their Indigenous students. Many had been publicly acknowledged and awarded for the work that they had done in this area. While there was some variation in the literacy programs that they used, *First Steps* and *Reading Recovery* being the most commonly mentioned, the overall impression was that the schools were attempting to develop learning environments that were relevant to their students' social and cultural backgrounds.

All of the schools employed AIEWs for at least a part of the time from 2000-2002. In some schools there was a strategic focus on increasing the Indigenous presence around the school by employing Indigenous teaching and non-teaching staff, training parents as ATAS tutors and inviting Elders and school-based artists-in-residence to participate in various activities. In these schools, there had been a corresponding increase in the percentage of Indigenous students attending the school.

The surrounding communities were mostly described as economically depressed with high unemployment and high transience. Many were highly multicultural and some school communities included a significant proportion of non-Indigenous ESL speakers in addition to Indigenous ESL speakers. While the extent of Indigenous community involvement in the schools varied, there were invariably strong connections between a core group of school staff and community members who were proactively working towards improving educational opportunities for the Indigenous students at the school.

4. DEVELOPING SKILLS IN ENGLISH LITERACY AND NUMERACY

This section provides a summary of the students' developing skills as measured by assessment tasks developed for the ACER Longitudinal Literacy and Numeracy Survey (Meiers reference here). It also provides a summary of the relationship between a range of demographic measures and achievement.

STUDENT CHARACTERISTICS

Altogether, 152 students from the 13 schools completed at least one of the five sets of English literacy and numeracy assessments; 111 completed two or more of these assessment points.

Background information about each of the students was collected through questionnaires completed by class teachers in 2000, 2001 and 2002. The questionnaires varied slightly from year to year but generally asked for information on students' age, gender, main language spoken at home, physical and learning disabilities and parents' occupation, (see Table 4.1). In addition, the questionnaires also asked about students' attentiveness in class, their attendance, the number of schools they had attended and whether the student received additional support such as ESL, literacy or numeracy support.

Unfortunately questionnaires were not filled out for every student in every year, nor were the teachers able to answer all questions. School administrations provided additional data about the students at the end of 2002. A summary of the data collected is presented in Table 4.1.

The sample has more males than females, though it remains relatively gender balanced. Most students were Aboriginal, 7 per cent were Torres Strait Islander and 1 per cent were both Aboriginal and Torres Strait Islander. Most students in the sample were born in 1994 though the year of birth ranged from 1992 to 1995. The range in student ages can be partly attributed to the different school entry ages across the States and Territories. The students came from a variety of localities with the sample split relatively evenly with one-third of students from metropolitan schools, one-third regional and another one-third from remote and very remote areas. The classification was based on school locality using the Accessibility/Remoteness Index of Australia (ARIA), developed by the Australian Bureau of Statistic (Department of Health and Aged Care, 2001), and does not necessarily reflect the student's home environment.

One of the questionnaire items required teachers to nominate students' main home language. The collection of this information was important; data collected about languages that Indigenous students speak is usually categorised as either English or an Indigenous language, and does not include non-standard dialects of Australian English. The questionnaire options included standard Australian English, Aboriginal English, Aboriginal language and Torres Strait Islander Kriol.

A total of 27 students were identified as speaking Aboriginal English as their main language at home. In some instances there was an inconsistency in how this item was responded to in successive years by teachers (not necessarily by different teachers). This inconsistency was confirmed in discussions with AIEWs⁹ and is further discussed in Section 5. In 2002, school administrations were asked to confirm students main home language and students were then categorised with an 'on balance' judgement using all sources of information. The inconsistency in responses to this item reflects a range in awareness and acknowledgment of the linguistic diversity of Indigenous students.

⁹ Within this paper, the abbreviation AIEW is used to refer to Australian Indigenous people employed by schools in a para-professional capacity to support the education of Australian Indigenous students.

Of the 91 students for whom information was supplied about additional support in the classroom, 48 students received ESL, literacy and/or numeracy support. A smaller number of students were reported to have support for a physical disability, mostly speech (9 students) and hearing (5 students)¹⁰.

Table 4.1 Summary of student characteristics (N=152)

Characteristics	N
Gender	
Male	82
Female	68
Missing	2
Ethnicity	
Aboriginal	121
Torres Strait Islander	9
Aboriginal and Torres Strait Islander	3
Missing	19
Main Home Language	
English	66
Aboriginal English	27
Indigenous Language	32
Missing	27
Year of Birth	
1992	1
1993	25
1994	87
1995	19
Missing	20
School Locality	
Metropolitan	53
Regional	46
Remote	30
Very Remote	23
Disability	
Yes (Including: Intellectual, Hearing, Speech, Epilepsy)	16
No	67
Missing	69
Additional School Support in 2000	
Yes	48
ESL	32
Literacy Support	20
Numeracy Support	15
Other Support	3
No	43
Missing	61

¹⁰ During school visits, researchers noted that funding and resources for hearing assessment along with a lack of awareness of some teachers could possibly have led to an under-reporting of hearing problems.

ENGLISH LITERACY AND NUMERACY ASSESSMENT RESULTS

The LLANS Assessment Tasks

Assessment tasks developed and used in the ACER Longitudinal Literacy and Numeracy Survey (LLANS) were used to provide a measure of English literacy and numeracy skill development. Performance on the assessment tasks is reported using the scales developed for the LLANS study. A property of these scales is that both student performance and task difficulty can be expressed on the same scale as they share a common unit of measurement.

As outlined in Section 2, the LLANS assessment tasks were chosen for this project as being consistent with good assessment practice for Indigenous students. All assessment instruments include a number of common items. This enabled a continuous scale to be constructed, against which development could be mapped (see Figures 4.1 and 4.2). The distributions for both the 'main LLANS sample' (for whom the scales were first derived) and for the 'Indigenous sample', that is, the students in this study are provided.

Interpreting the Results

Before proceeding to describe the growth profiles of the Indigenous students and compare these with those of the main LLANS sample it is necessary to point out several differences between the two samples which should be kept in mind when interpreting the data. Firstly, the main LLANS study completed Assessment 1 in March of the first year of school. In the Indigenous sample the first assessment task was completed in a number of the schools much later than others, some as late as the middle of the year. This occurred because delays were experienced in the return of parental permission forms while other delays were brought about by the nomination of additional schools by the Education Department after the study had commenced. Even so, the lack of a significant difference in achievement between the Indigenous sample and the main LLANS sample at the first assessment point is consistent with other research (Raban et al., 2001).

Another difference between the main LLANS sample and the Indigenous sample occurred at the fifth assessment point. Some of LLANS tasks in Literacy Assessment 5 required independent reading and, after consultation with schools, it was decided that where appropriate students could instead be tested using a different version of Assessment 4. Schools made this decision based on their perception of the students' capabilities. The research rationale was that providing a task that students could not complete, while providing a more robust comparison with the main LLANS sample, would not provide a picture of Indigenous students' true literacy capabilities. Thus the Indigenous sample at Assessment 5 includes a mixture of students completing either Assessment 4 or 5. As all LLANS assessments are equated on to a single scale it was decided that the use of different assessments should not affect the validity of comparisons between the Indigenous sample and the main LLANS sample.

When comparing the profiles of the Indigenous students with the main LLANS sample it needs to be remembered that the two samples are very different in size and they are not geographically equivalent. While the proportion from each State and Territory in the main LLANS sample was based on population, the Indigenous sample included five schools from the Northern Territory, two from South Australia and one school from each of the remaining states and territories.

Finally, it should also be noted that mobility, absenteeism and the addition of extra students during the course of the project means that the group of students completing the assessments at each point in time differed slightly. A consequence is that there are three approaches to the way 'growth' is described and reported. The first part of this section focuses on achievement at each assessment point, and differences between average achievements at different points, rather than growth in achievement based on the same individuals. The second part of the section examines student profiles within schools showing changes in achievement for some students who were followed through as well as those for whom the data were complete. The third part of the section uses

statistical methods to make estimates for some of the missing data and it is here that there is an analysis of factors related to individual growth in English literacy and numeracy achievement.

English Literacy Achievement

The distributions of student achievement shown in Figure 4.1 demonstrate a wide range of achievement in English literacy for both the Indigenous students in this study and the students in the main LLANS study. This means that there is considerable overlap in the achievements of each group even though there may be differences between the average scores. As shown in Table 4.2 the mean achievement scores of the Indigenous students were significantly below that of the main LLANS cohort for all but the first assessment point. The trend appears to be that the differences in average achievement scores between assessments were smaller for the Indigenous sample than the LLANS sample.

For the Indigenous samples there was a differences of about five points between each assessment but between Assessments 4 and 5 a larger difference (of 10 points) was evident reflecting the greater distance in time between these assessment points. In contrast, in the main LLANS sample there was a difference of 13 points between Assessments 1 and 2, 10 points between Assessments 3 and 4 and eight points between Assessments 4 and 5. Between Assessments 2 and 3, when the students were spending part of the interval on summer holiday, the difference was six points, very similar to that evident in the Indigenous sample. In other words there was some closing of the gap over this period. To illustrate what students could do, at Assessment 4 the median performance level in literacy in the main LLANS sample was reflective of the ability to “listen then give a comprehensive summary of a picture story book or reader.” In contrast the Indigenous students’ median performance level in Literacy was reflective of the ability to “read many irregularly spelt words (eg, would, because) and spell many words correctly in own writing.”

Table 4.2 English literacy achievement across five assessments for the main LLANS cohort and the Indigenous sample: means, standard deviations and medians

	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5
<u>Means</u>					
Main LLANS Sample (SD)	47.4 (12.9)	60.4 (13.1)	66.4 (12.4)	77.2(10.9)	85.5 (11.4)
Indigenous Sample (SD)	48.8 (14.6)	55.2 (13.2)	59.9 (17.0)	64.3(11.7)	74.1(10.0)
<u>Medians</u>					
Main LLANS Sample	44.3	57.4	64.1	73.6	85.5
Indigenous Sample	48.8	53.2	57.7	62.2	75.1
N (LLANS Sample)	911	795	744	698	648
N (Indigenous Sample)	113	71	62	89	82

Numeracy Achievement

The distribution for numeracy achievement (shown in Figure 4.2) reflects a wide range of performance. As was noted for the distribution of literacy scores this means that there is considerable overlap in numeracy performance between the two samples. The spread of numeracy scores among the Indigenous sample is rather less for Assessments 2 through 5 than for Assessment 1. A similar pattern is evident for the main LLANS sample.

Longitudinal Literacy and Numeracy Study (LLANS)

LITERACY SCALE DESCRIPTION & NORMATIVE DISTRIBUTIONS

Note: The indicators listed on this side of the scale have been derived from the tasks completed in the LLANS assessments. Only a selected sample of these indicators has been used to describe developing achievement in literacy.

- Writes a variety of simple sentences; selects and controls content of own writing. Listens to a text and infers the reason for an event without picture clues.
- Uses full stops and capital letters to separate sentences. Identifies the purpose of parts of a text (eg, glossary, caption).
- Listens then gives a comprehensive summary of a picture story book or reader.
- Reads aloud with word-for-word accuracy an early reader that develops a complete factual account with some support from illustrations. Connects some ideas in own writing.
- Segments or blends four phonetically regular syllables in an unfamiliar word. Manipulates beginning, middle and end sounds in short words to make new words.
- Reads many irregularly spelt words (eg, *would, because*).
- Spells many words correctly in own writing. Listens to a text and connects pictures and text to explain events.
- Reads a short text to locate explicitly stated information. Uses 'and', 'but' or 'then' to join ideas in a sentence. Names and describes the purpose of common punctuation marks.
- Reads aloud with moderate accuracy an early reader that portrays a predictable event with extensive repetition of phrases.
- Explains explicitly stated ideas in short narrative and factual texts. Lists simple ideas in own writing.
- Generates a word that rhymes with a given word.
- Uses simple sentences in own writing. Writing includes many unconventional spellings that are phonetically plausible. Listens, then gives a relevant detail from a narrative or factual text.
- Matches the same first sound or the same rhyme in 2 of 3 words in any order. Reads some common words (eg, *do, little, are, from, one*). Identifies beginning, middle and end sounds in regular one-syllable words. Predicts a story from the cover of a book. Names and describes the purpose of a full stop.
- Writes some recognisable words. Reads a few common words (eg, *you, my, and, the, is*). Sounds and names at least 10 alphabet letters.
- Indicates correct direction for reading.
- Writes own name correctly.
- Uses clues from pictures to connect events.
- Distinguishes a letter from a word.
- Expresses own meaning using unconventional writing.
- Locates the front of a picture story book. Identifies a word.

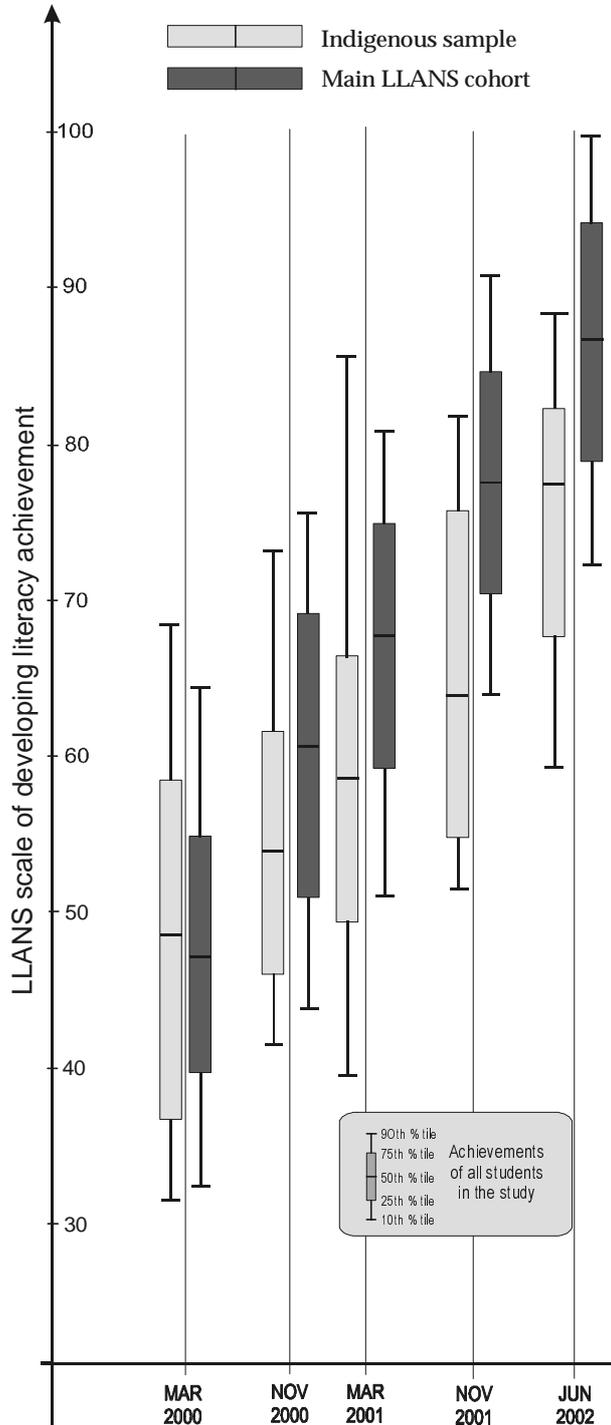


Figure 4.1 LLANS Literacy Scale: Assessments 1 to 5 comparing English Literacy Achievement of the Indigenous Sample with the main LLANS Sample

Longitudinal Literacy and Numeracy Study (LLANS)

NUMERACY SCALE DESCRIPTION & NORMATIVE DISTRIBUTIONS

Note: The indicators listed on this side of the scale have been derived from the tasks completed in the LLANS assessments. Only a selected sample of these indicators has been used to describe developing achievement in numeracy.

Counts forwards by tens to 150, forward by twos to 24 and back from 24 by ones.

Reads cents and dollar-cent combinations, and identifies highest values. Calculates *how many more* when comparing 2 unequal groups on a graph. Given units for one side of a square, calculates units for all sides. Applies counting by tens or fives to collections structured in groups of ten or five. Identifies where to cut to share equally for shapes with one line of symmetry.

Selects 2 different ribbons from a collection of 4 that combine to match the length of a given object. From a collection of 6 objects, estimates which one *matches a short length*. Uses a path on a plan to explain an event. Constructs a square and a triangle with multiple units per side. Counts forward by tens to 100. Estimates the number of units required to measure a *short length*.

Identifies same sized groups on a bar graph (not adjacent). Given a sorted collection, generates a criterion for an alternative sort.

Cuts a circle to *share equally* between 4 people.

On a bar graph, identifies the number of items in one group and combines data from 2 groups. Selects and checks that a 'ribbon' matches the length of a given object (eg., side of a book).

Recreates an arrangement of tiles on a grid (eg., 12 tiles on a 4 x 4 grid). Names a *rectangle*. Counts forward by ones (not starting at 1) for numbers under 100. Identifies fourth in a line. Reads 2-digit numbers. Adds and subtracts numbers under 10 without given materials. Counts collections under 30.

Displays sorted objects as a pictograph and adds an item to graph. Constructs a square and a triangle using one unit per side. Identifies the object that is *closest* to a specified object on a plan.

Places repeated units appropriately to measure length. Identifies the number of items in one group of a pictograph. Counts collections under 20. Identifies ordinal positions up to a *third* and places an object *last* in line. Says the number *before* - up to 10, and the number *after* - up to 20. Counts forward by twos to 12 and counts back from 10 by ones. Ranks by length in collections of up to 6 objects. Halves practically (eg., Cuts a circle, folds a ribbon). Follows arrows on a path on a plan. Identifies the *largest* and *smallest* by length in collections of up to 7 with objects and from graphs. Generates own single line repeating pattern. Counts forward to 20 and counts back from 5. Writes single digits. Shares, adds and subtracts using given materials with collections under 10. Recognises prices; identifies a one dollar coin from a mixed coin collection. Identifies a different and a shared attribute of 2 objects. Positions an object relative to other objects using a range of everyday terms (eg. *on top of, in front of, behind, etc.*). Sorts objects by a given criterion. Names a *square*; names a *triangle*. Recreates a single line repeating pattern (ab, ab). Identifies a different attribute of 2 objects.

Counts collections under 10.

Identifies *first* in a line. Reads numbers under 10.

Compares objects according to size, colour and shape.

Counts forward to 10 by ones. Names a *circle*.

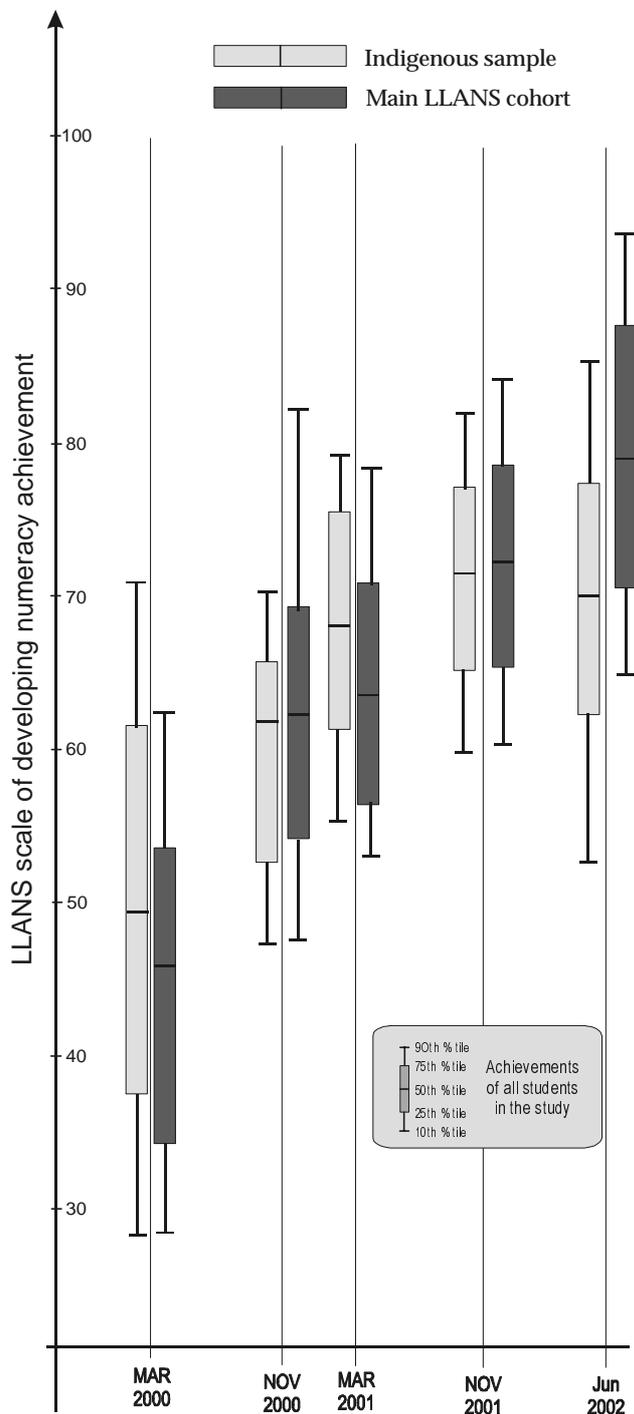


Figure 4.2 LLANS Numeracy Scale: Assessments 1 to 5 comparing Numeracy Achievement in the Indigenous Sample with the main LLANS Sample

Table 4.3 Numeracy achievement across five assessments for the main LLANS cohort and the Indigenous sample: means, standard deviations and medians

	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5
<u>Means</u>					
Main LLANS Sample (SD)	44.5 (15.2)	63.2(13.2)	64.1(10.7)	72.1(9.2)	79.2(11.6)
Indigenous Sample (SD)	48.7 (16.5)	60.3(10.09)	68.1(10.45)	70.1(11.3)	69.0 (12.0)
<u>Medians</u>					
Main LLANS Sample	44.7	62.2	62.6	71.5	79.0
Indigenous Sample	49.2	62.0	67.6	70.2	68.9
N (LLANS Sample)	911	798	747	687	650
N (Indigenous Sample)	117	73	63	86	84

Table 4.3 indicates that the mean numeracy achievement of the Indigenous sample was slightly higher (by four scale points) than that of the main LLANS sample at Assessment 1 (the beginning of 2000) and slightly lower at Assessments 4 (by two scale points) which corresponded to the end of 2001¹¹. However, at Assessment 5 the mean score for the main LLANS sample was 10 points higher than that for the Indigenous sample.

The time series of the means for each sample provides a complementary perspective. Table 4.3 shows that the mean for the Indigenous sample was 12 points higher at Assessment 2 than at Assessment 1. The corresponding difference in the main LLANS sample was 19 points. There was a larger difference in numeracy scores for the Indigenous students between Assessments 2 and 3 (8 points), than for the main LLANS students (1 point). Interestingly this corresponds to a period that included the summer holiday period. Between Assessments 3 and 5 which covered the whole of Year 1 and the first half of Year 2 the mean score for the Indigenous sample changed very little at all, less than one point on the scale. Over the same period the mean for the main LLANS samples increased by 15 points.

In summary during the first two years of the study (Assessments 1 through 4) the numeracy achievement of Indigenous students appeared to be similar to the main LLANS sample. However, between Assessments 3 and 5, from the beginning of Year 1 until the middle of Year 2, the gap widened to 10 points. Further analysis of the data would be required to determine whether these differences were related to any particular items in terms of content or format.

Associations between English Literacy and Numeracy Achievement

The achievement of Indigenous students in English literacy was correlated with their numeracy achievement. Relevant correlation coefficients are recorded in Table 4.4. A correlation coefficient of 1 would indicate a perfect association and a coefficient of 0 would indicate no association. The magnitude of the correlation coefficients in Table 4.4 shows a strong association in the early stages of the study that declines in the later stages. The degree of association is also represented in the scatter plots in Figure 4.3. The correlation coefficient for Assessments 4 and 5 is what would be expected for primary school students.

¹¹ At assessment 2 the score for the Indigenous sample was 3 points lower than for the main LLANS sample and at assessment 3 it was 4 points higher.

Table 4.4 Correlation coefficients for literacy and numeracy scores at each assessment point

	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5
Indigenous Students	0.79	0.78	0.75	0.65	0.62
Main LLANS students	0.79	0.70	0.67	0.63	0.52

STUDENT-WITHIN-SCHOOL PROFILES

In addition to analysing the assessment results for the sample as a whole, a series of students-within-school growth trajectories were generated to gain a picture of English literacy and numeracy growth for students in the same school. Examining assessment results on individual level complements the group patterns by highlighting the divergence across individuals within a group in growth and achievement. The individual analyses illuminates that growth is not always linear and forwards; many students experienced both improvements and declines in both literacy and numeracy achievement across time.

While there is a great deal of variation between individual students within schools, the overall patterns of achievement in individual schools are quite distinct suggesting that there are particular learning contexts that have an effect on student performance.

Four student-within-school profiles for English literacy and numeracy are shown below. These four schools (4, 5, 9, 10), while not covering the breadth of regional or language groups present in the overall sample, were nevertheless chosen because they represented the schools with the most complete data across all five assessment points.

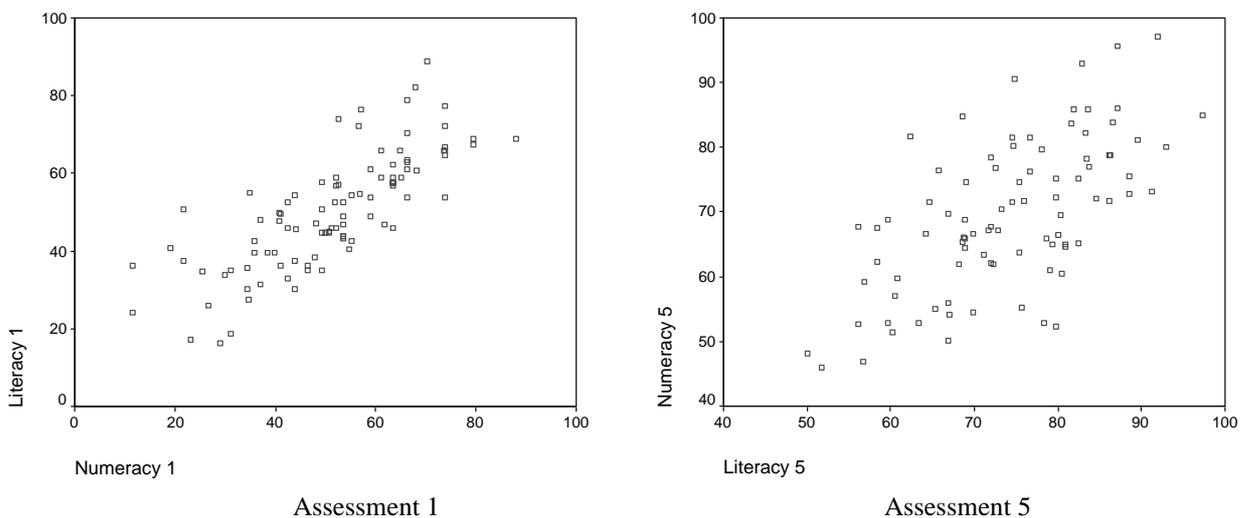


Figure 4.3 Associations between English Literacy and Numeracy Achievement at Assessments 1 and 5

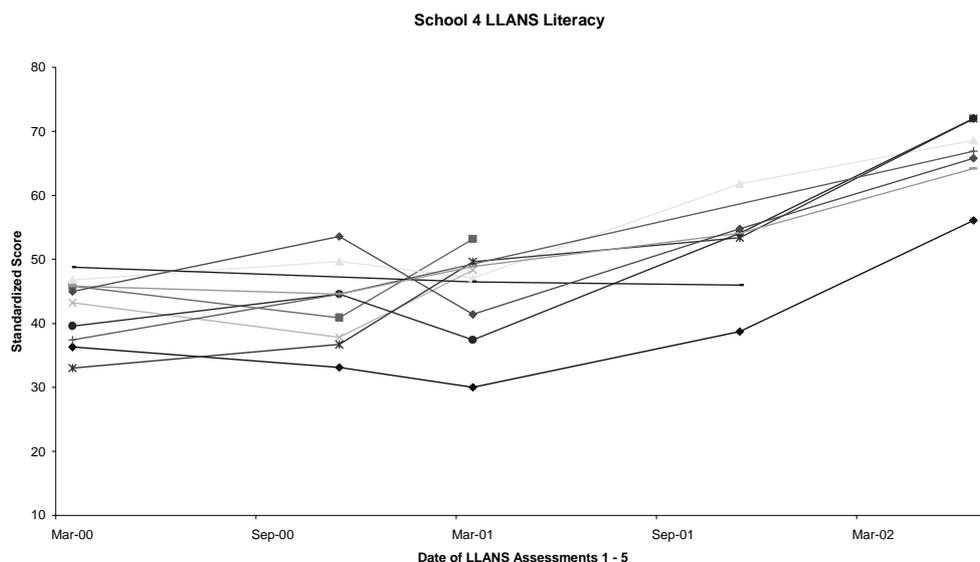


Figure 4.4 Student-within-school growth trajectories for English literacy – School 4

In most instances the individual students either commenced school or ended up in different classes. This fact, combined with the small numbers of students, prohibits any analysis of teacher and school-based effects independent of each other. However, the main point of interest is that the patterns of development during and between years were remarkably different. Schools 4, 9 and 10 were among those who completed Assessment 1 towards the middle of Year K¹².

School 4

As shown in Figure 4.4 the growth patterns in *English literacy* achievement for individual students in School 4 were remarkably divergent. During Year K some students improved while others declined. Between Assessments 2 and 3 a similar pattern emerged.

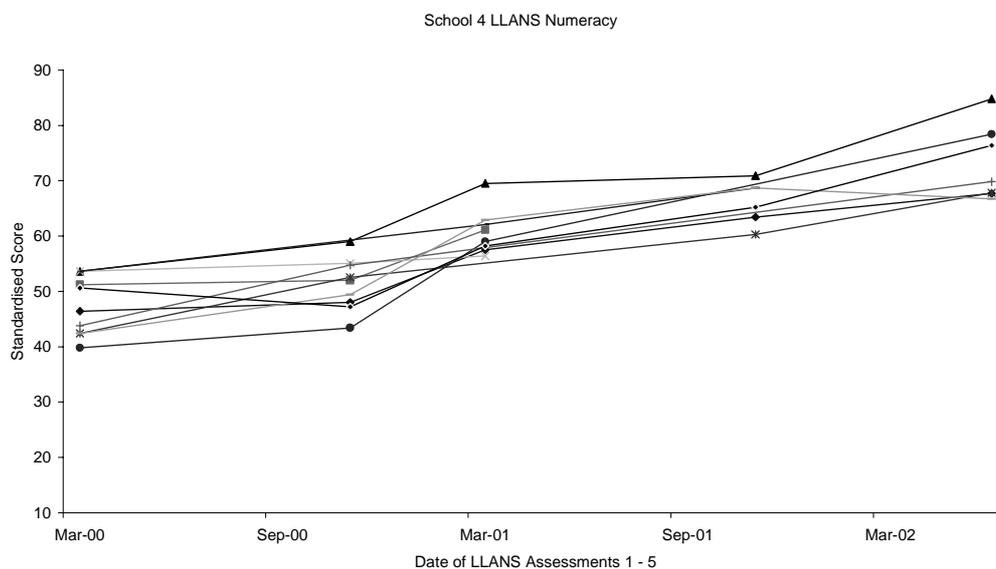


Figure 4.5 Student-within-school growth trajectories for numeracy – School 4

¹² Throughout this report, the initial year of schooling is referred to as Year K and includes Transition and Prep. In Queensland, the first compulsory year of schooling is Year 1.

Achievement levels increased to varying extents during Year 1, although a few students showed evidence of decline. From the end of Year 1 to the middle of Year 2, all students showed evidence of growth in English literacy skills.

In contrast to their performance in English literacy, Figure 4.5 indicates that students in School 4 showed relative consistent growth in their *numeracy* achievement. During Year K, the first year of assessments, students grew very little in numeracy achievement as evidenced by the flat profile between Assessments 1 and 2. From the end of Year K to the middle of the first term in Year 1, a period including school holidays, most students revealed relatively rapid growth, however during Year 1 very little growth was evident. These students, in contrast to the sample as a whole, showed growth between the end of Year 1 and the middle of Year 2.

School 5

The profile for *English literacy* achievement in School 5 shown in Figure 4.6 differs from that in School 4. Students generally appeared to develop in the area of literacy Year K. There is a slight decline in achievement at the beginning of Year 1, which is consistent with overall data trends that show a slight drop in achievement when students are absent from school over the school holiday period. However, over the course of Year 1 all but one student grew in English literacy skills as evidenced by the profile between Assessments 3 and 4. Such growth continued into Year 2 and Assessment 5 for most students albeit at different rates.

The profile of *numeracy achievement* for students in School 5, shown in Figure 4.7, appears to be one of generally and steadily increased student achievement over time. The greatest difference, and therefore probably the most rapid growth, appears between Assessment 1 and 4 with the emergence of stability for some students between Assessments 4 and 5. Nevertheless, others continued to grow between these final two assessments, from the end of Year 1 to mid-Year 2. A narrowing in the range of students numeracy achievement over the three years evident in School 4 (Figure 4.5) is also evident at this school. Students commenced school (Assessment 1) with a very wide range of scores spread over 50 points on the scale. By the middle of Year 2 (Assessment 5) this had reduced to 30 points.

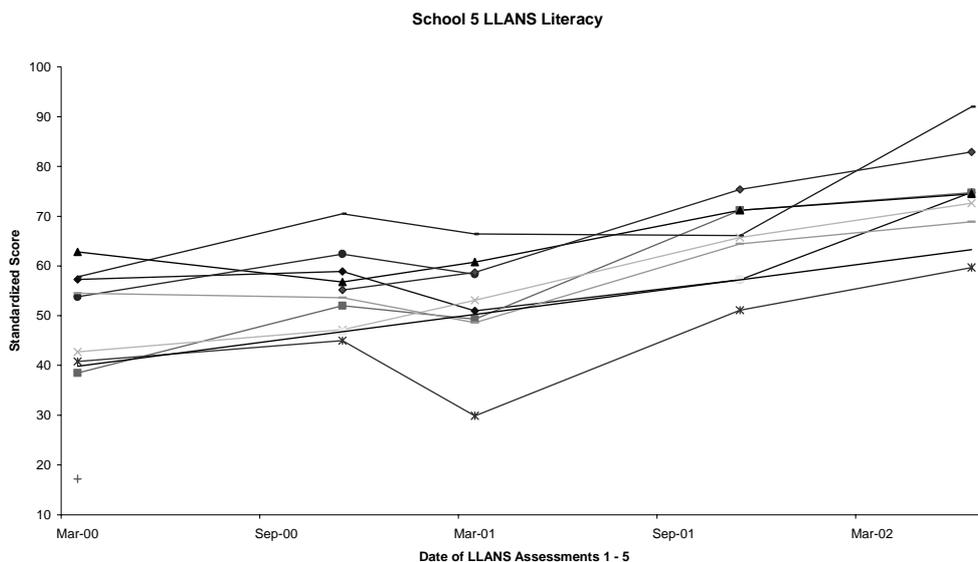


Figure 4.6 Student-within-school growth trajectories for English literacy – School 5

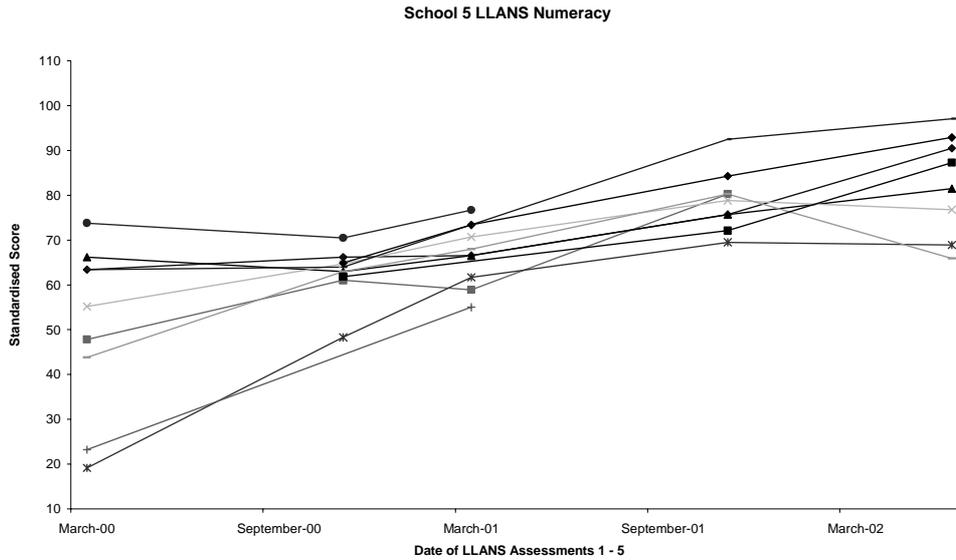


Figure 4.7 Student-within-school growth trajectories for numeracy – School 5

School 9

Students in School 9, shown in Figure 4.8, were almost equally divided between those exhibiting increased levels of *English literacy* achievement and those evidencing decline in literacy achievement during Year K. The majority of students show some growth in achievement from the end of Year K to the middle of Term 1 in Year 1 (between Assessments 2 and 3). This pattern continued through Year 1 and the first half of Year 2. The two best performing students at the end of Year 1 were the only students to decline between Assessments 4 and 5 at this school.

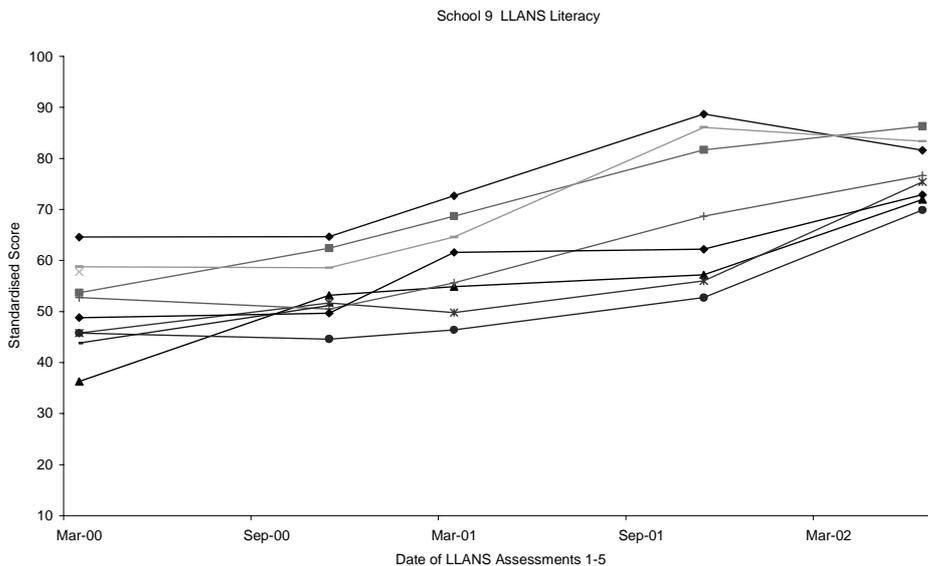


Figure 4.8 Student-within-school growth trajectories for English literacy – School 9

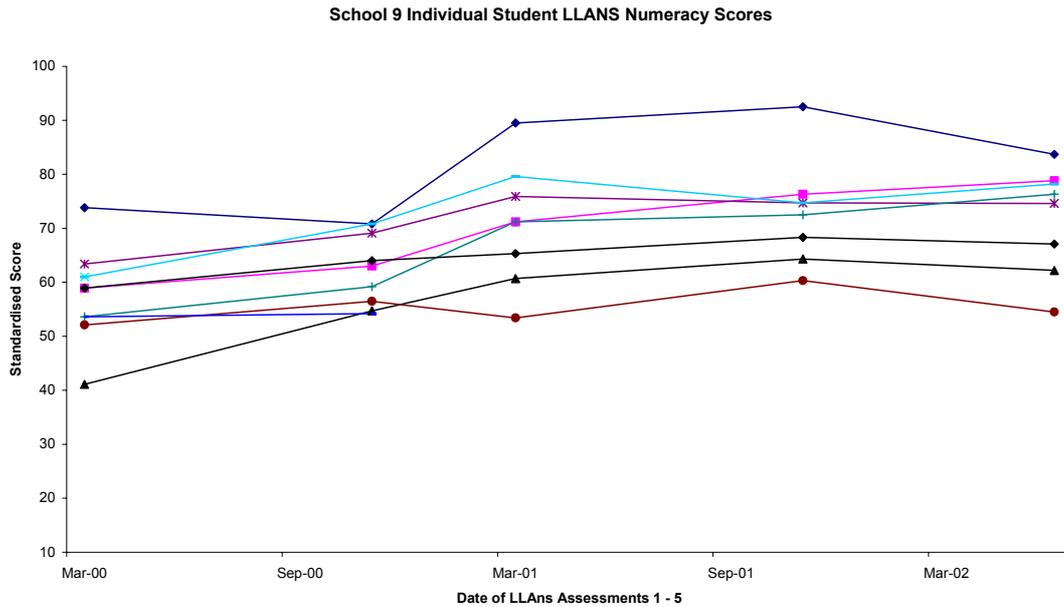


Figure 4.9 Student-within-school growth trajectories for numeracy – School 9

Figure 4.9 shows the profiles of growth in *numeracy* achievement for students from School 9. Apart from the student who achieved the highest numeracy scores across all five assessment points, the profile of students at this school appears relatively consistent. Small to moderate growth is evident between each assessment point for the majority of students except between 4 and 5 where either static or slightly declining profiles are revealed. The overall quantum of growth between Assessments 1 and 5 appears relatively slight; however, it should also be recognised that on Assessment 1 all but one student achieved a score above the mean suggesting that these students were achieving at a consistently high level on the numeracy tasks. By Year 2 these students were achieving at a similar level to the rest of the Indigenous sample.

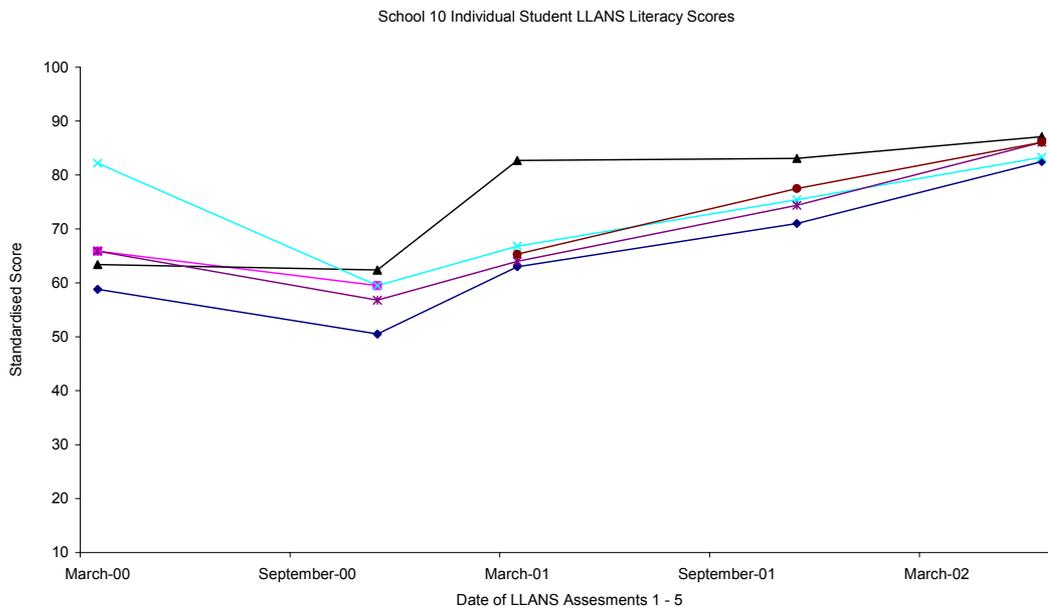


Figure 4.10 Student-within-school growth trajectories for English literacy – School 10

School 10

As shown in Figure 4.10 assessment results for students in School 10 generally show a decline in *English literacy* achievement during Year K. Between Assessments 2 and 3 all students grew in literacy achievement and this profile continued through later assessments albeit to a lesser extent between Assessments 4 and 5. All of the students were in the same class when they commenced school.

Corresponding profiles for *numeracy* achievement are shown in Figure 4.11. The numeracy achievement of students at this school appears similar to those in School 9. While the mean level of numeracy achievement increased slightly between Assessments 1 and 5, Figure 4.11 suggests a relatively flat profile. Most students grew slightly over all while a few declined between one set of assessment points. This profile could reflect a ceiling effect with all students at this school demonstrating above average numeracy skills on Assessment 1. While this achievement level was maintained through the three years under study few students showed rapid growth between assessment points.

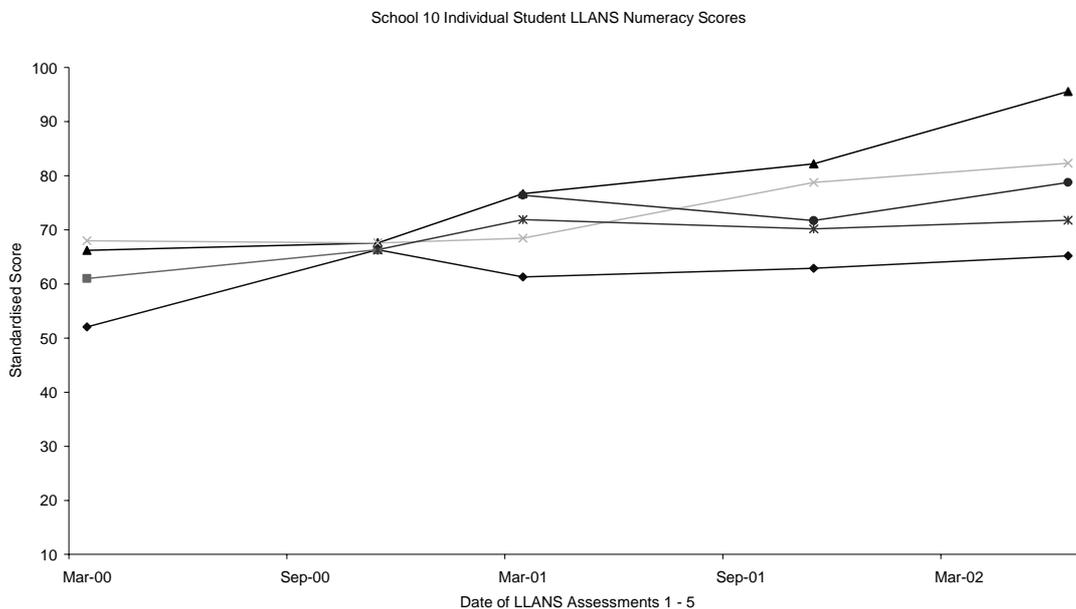


Figure 4.11 Student-within-school growth trajectories for numeracy – School 10

FACTORS INFLUENCING ACHIEVEMENT AND GROWTH

Imputing Achievement Data

In the analyses of survey data, and especially longitudinal survey data, it is usually necessary to invoke procedures for handling missing data, and especially those cases where there are few missing data points. These procedures make use of what is known about the students to impute values for the missing data. To improve the power of analyses and enable those who had missed only one or two out of the five assessments to be included, imputations (estimates) were made of missing achievement scores for the present analyses.

At the conclusion of 2002, 35 of the 152 students who participated in the project had completed all achievement tasks. Those participants who completed only one assessment point were removed from the sample, as their data provided no information on growth or change, which is the critical focus of this report. Subsequently the imputation procedure, Expectation Maximisation (EM), available from common statistical packages such as SPSS11, was used to impute the missing

achievement data for the remaining students with two or more assessment points. The EM procedure was used to impute missing data as it has the advantage of avoiding overfitting the data and substantially reducing variance (Tabachnick & Fidell, 2001). Little's Chi-Square was non-significant suggesting the missing data was random and hence safe to impute values. The imputed data for each participant were only used where there was data from at least three assessment points. Consequently, 111 students had sufficient data for analyses of growth in literacy and numeracy achievement.

Table 4.5 provides the means standard deviations of each LLANS assessment both before and after data was imputed and reveals roughly equivalent means and very slightly reduced standard deviations after imputations.

Table 4.5 Comparing LLANS score before and after Imputation using EM

	n(imp n)	Mean (SD) Before	Mean (SD) After
Literacy Assessment 1	113(98)	48.8(14.0)	50.2(14.8)
2	71(88)	54.8(12.6)	54.8(12.3)
3	62(78)	59.3(16.5)	59.9(15.6)
4	89(90)	64.3(11.7)	64.5(12.7)
5	82(90)	74.1(10.0)	73.9(10.3)
Numeracy Assessment 1	117(100)	48.6(16.2)	50.9(15.6)
2	72(90)	60.2(10.1)	59.9(9.5)
3	62(81)	67.9(10.4)	66.9(9.9)
4	85(88)	70.9(8.7)	71.1(8.6)
5	84(90)	69.0(12.0)	69.7(11.6)

Schools and Classroom level factors

School

One of the key factors that influences students' educational experiences is the school itself. Schools differ on numerous dimensions and with the small number of schools in this sample it is not possible to quantitatively isolate factors such as the contribution of particular teachers and specific resources. Nevertheless, after controlling for initial achievement in a regression analysis, it was observed that school membership explained 34 per cent of the variance in literacy achievement and 46 per cent in numeracy achievement at Year 2. The mean English literacy and numeracy scores at Assessment 1 and 5 for each school are presented in Figure 4.12. Table 4.6 records the numbers of students on which each school record is based.

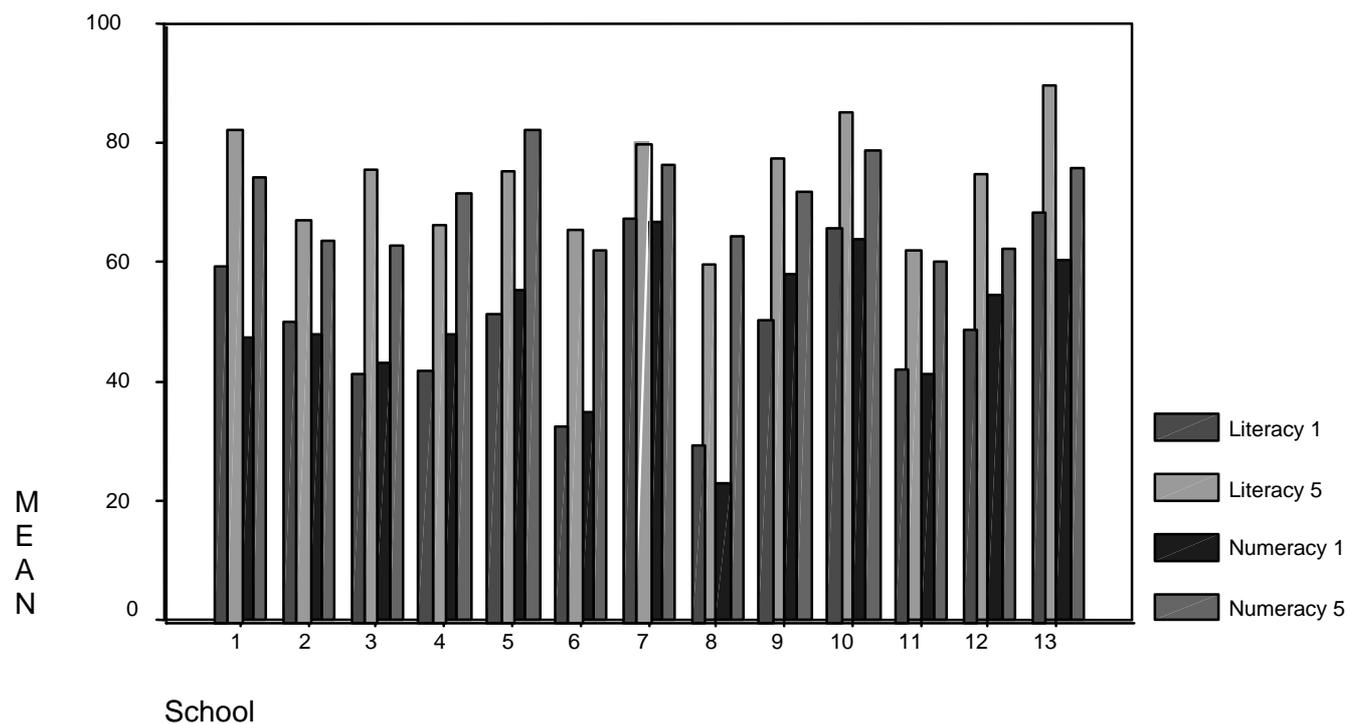


Figure 4.12 Mean Literacy and Numeracy Scores for Assessments 1 and 5 by School

Table 4.6 Numbers of Students for Computing School Means

School	Literacy 1	Numeracy 1	Literacy 5	Numeracy 5
1	5	8	8	8
2	9	9	10	10
3	9	9	10	10
4	10	10	10	10
5	10	11	9	10
6	8	8	4	3
7	10	10	9	9
8	3	2	4	4
9	9	9	8	8
10	6	6	5	5
11	5	4	5	5
12	7	7	5	5
13	7	7	3	3

Geographic location

To ascertain whether differences between schools could be explained by geographic location, schools were categorised based on their remoteness using the Accessibility/Remoteness Index of Australia (ARIA), developed by the Australian Bureau of Statistics (Department of Health and Aged Care, 2001)¹³. Five of the schools in capital cities were classified as metropolitan, four schools in large provincial cities and one capital city were classified regional, two schools in smaller towns classified as remote and the two most isolated schools were designated very remote.

After controlling for initial English literacy and numeracy achievement in regression analyses, it was observed that there were regional differences associated with achievement in Year 2. Figure 4.13 indicates that students who attended schools in metropolitan and regional areas achieved at a higher level on the English literacy assessment at both the beginning of the study (in all cases except one Year K) and the end (Year 2) than their peers in remote and very remote schools. The magnitude of the difference was similar across the duration of the study as reflected in the slopes of the lines. Interestingly, with numeracy a similar pattern is evident at the first assessment point (see Figure 4.14). However, by the middle of Year 2 those in regional centres were performing better than those from metropolitan areas (albeit represented by just one school) who performed at a level similar to those from remote and very remote localities.

An analysis of variance at the school level indicated that all four schools classified as regional typified the pattern evident in Figures 4.13 and 4.14. However, it should be recognised that these regional trends do not explain differences between students as well as differences between schools. There is greater variance between schools than between regions, with region explaining 15 per cent and 21 per cent of the variance in Year 2 English literacy and numeracy achievement after controlling for initial achievement at Assessment 1.

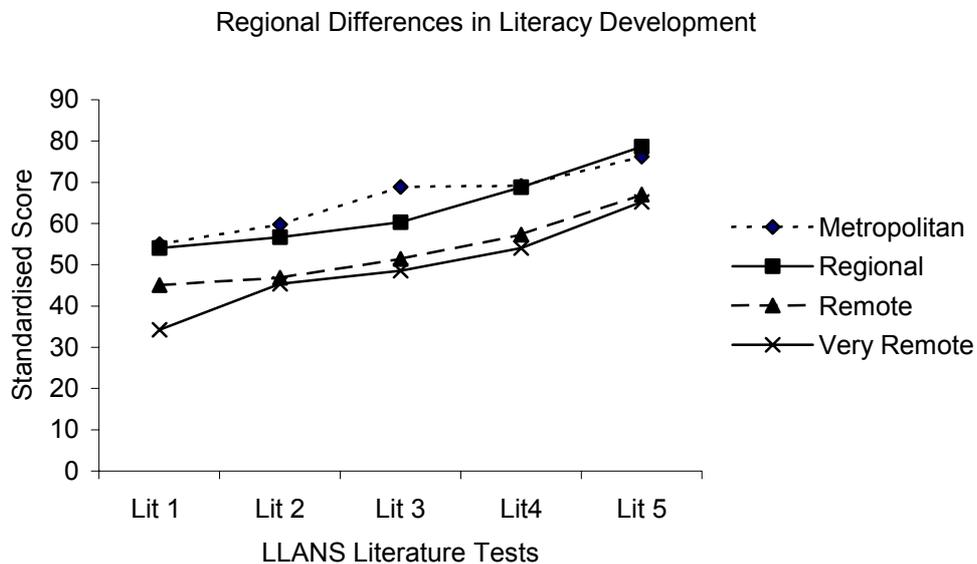


Figure 4.13 Regional Differences in LLANS English Literacy Achievement

¹³ ARIA does not seek to define the term 'rural' but provides a geographical measure of 'remoteness' in terms of accessibility. More remote areas have less access to service centres; less remote areas have greater access to service centres. The ARIA website is located at <http://www.health.gov.au/ari/aria.htm>

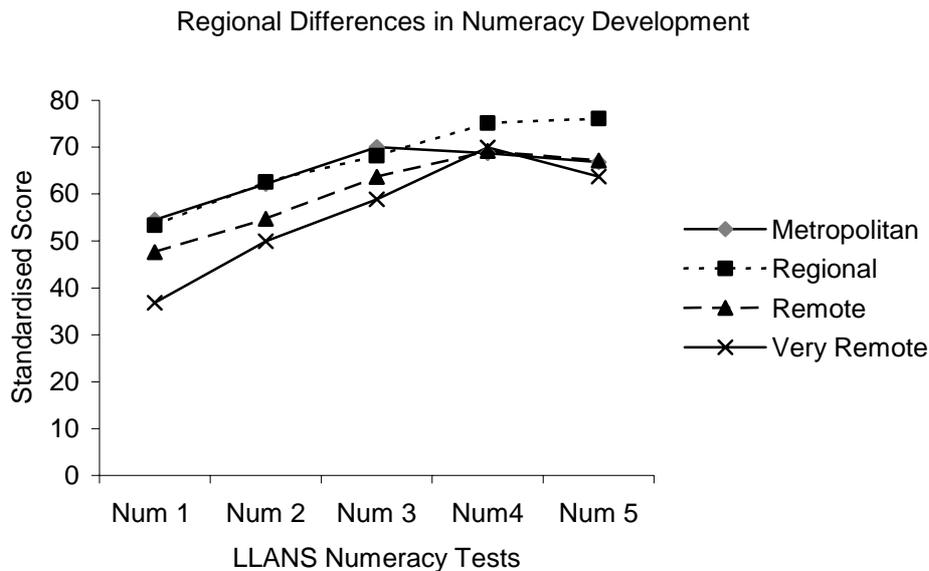


Figure 4.14 Regional Differences in LLANS Numeracy Achievement

Teacher Ratings of Student Achievement

In 2001, teachers were asked to rate students' achievement in literacy and numeracy on a five-point-scale from 'well below average' to 'well above average' against both their peers and the relevant State and Territory curriculum frameworks. Teachers rating of students' achievement in comparison to both their peers and the curriculum standards of their respective State or Territory were strongly related to the student's actual performance on the LLANS achievement tasks. Values of the correlation coefficients were 0.54 for literacy and 0.30 for numeracy. Teachers who responded to this survey question generally rated their students' performance as average or below. Teachers rated approximately 10 per cent of the students as 'slightly above average' or 'well above average' in either literacy or numeracy when compared to their peers and less than 5 per cent as above average comparing them to the state curriculum standards.

Student level factors

Initial achievement

Initial achievement at Assessment 1 was a strong predictor of achievement at Assessment 5 in both literacy and numeracy. In the case of literacy the correlation coefficient was 0.72 and in the case of numeracy the correlation coefficient was 0.68. Results such as these are consistent with what is found in other studies of student achievement through the early years of school (Ainley, Fleming & McGregor, 2002). An implication for methodology is that it is essential to control statistically for differences in initial achievement when conducting analyses that are intended to identify influences on student learning. An implication for policy is that the pre-school years provide the foundation for future learning and student skills at the start of school shape their subsequent learning in powerful ways.

Absenteeism

Data were collected from schools on the number of days students were absent in each of the three years and students were grouped according to the number of days absent. The number of days absent in one year among students for whom data was returned ranged from 0 days to 144 days; the cumulative days absent across the three years of the study among students for whom data was returned ranged from 1 day to 304 days.

Poor attendance in Year K did have consequences for achievement in later years with poor attendees performing lower than their peers on English literacy in Year 2. While the rate of non-attendance in the first year of school did not relate to numeracy achievement at Year 2, non-attendance in Years 1 and 2 was related to poorer achievement in numeracy in Year 2. Overall, the findings suggest that inconsistent attendance in the early years of school does impact upon subsequent achievement in English literacy and numeracy.

Table 4.7 Numbers of Days Absent from School

Days Absent in school year	No of students absent in 2000	No of students absent in 2001	Days absent in 1st half of school year	No. of students absent 1 st half of 2002
<20	26	33	<10	26
21-40	19	13	11-20	15
>41	19	19	>21	20
Missing	47	46	Missing	50

An arguably more prescient finding, in relation to absenteeism, was the strong consistency in attendance levels for individual students across the three years under study. A pattern of high absenteeism once begun appears to become entrenched and sets a pattern for future years.

Although regional and language background were not found to be significantly related to absenteeism in the first year of school, there were regional and language background differences related to absenteeism in Years 1 and 2. Students from remote and very remote locations reported higher levels of non-attendance. The same was true for students whose main home language was Aboriginal English.

While teachers could account for students who missed a few days or weeks of school per term as being due to sickness, family and cultural reasons, they were less clear as to the reasons behind students taking long absences from school.

Attentiveness

Student attentiveness or level of engagement in classroom learning processes, was measured with a scale developed by Rowe and Rowe (1999). Teachers rated their students' attentiveness against five paired statements and analysis of their responses was based on a summed score of their responses. Many teachers responded to each of the statements in a uniform fashion suggesting a global perception of the child as an attentive or inattentive learner. The rank ordering of students according to this score across the three years of study was relatively stable (correlation coefficients ranged from 0.42 to 0.66) which suggests a degree of consistency in student behaviour across the three years and in teachers' assessments of student attentiveness, as well as a degree of reliability in the measure used. Students with higher attentiveness scores in Year K performed at a higher level on Assessment 5 in Year 2. The correlation coefficient was -0.36 for literacy and -0.43 for numeracy.

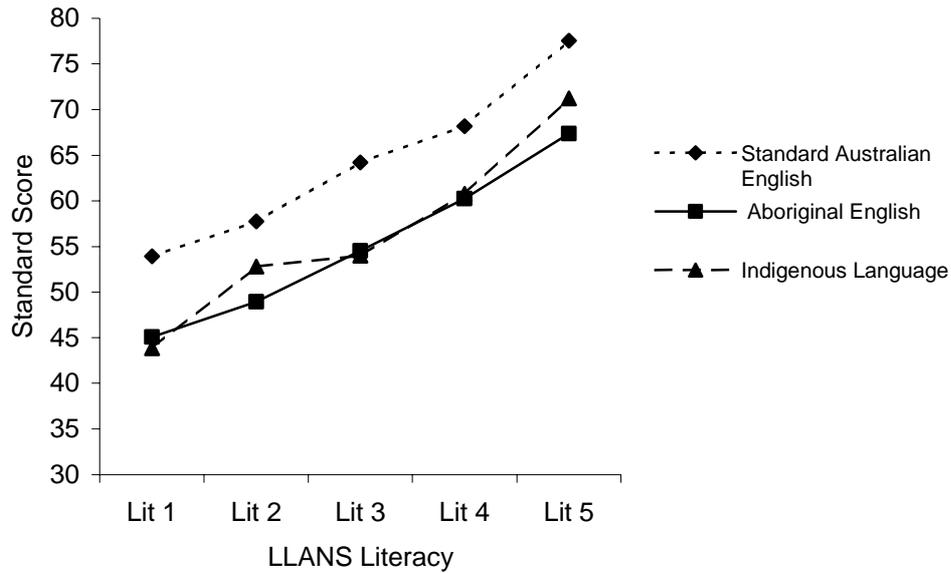


Figure 4.15 English Literacy Achievement by Language Spoken at Home

Language background

Students were categorised based on the main language they spoke at home. Three categories were used: standard Australian English, Aboriginal English and Torres Strait Islander Kriol/Aboriginal language. Those who spoke standard Australian English at home performed significantly better than those who spoke Aboriginal English or an Indigenous Language in both numeracy and English literacy across the all three years. Even after accounting for differences in English literacy and numeracy skills at the beginning of school, home language influenced later achievement especially in numeracy. Relevant data are displayed in Figures 4.15 and 4.16.

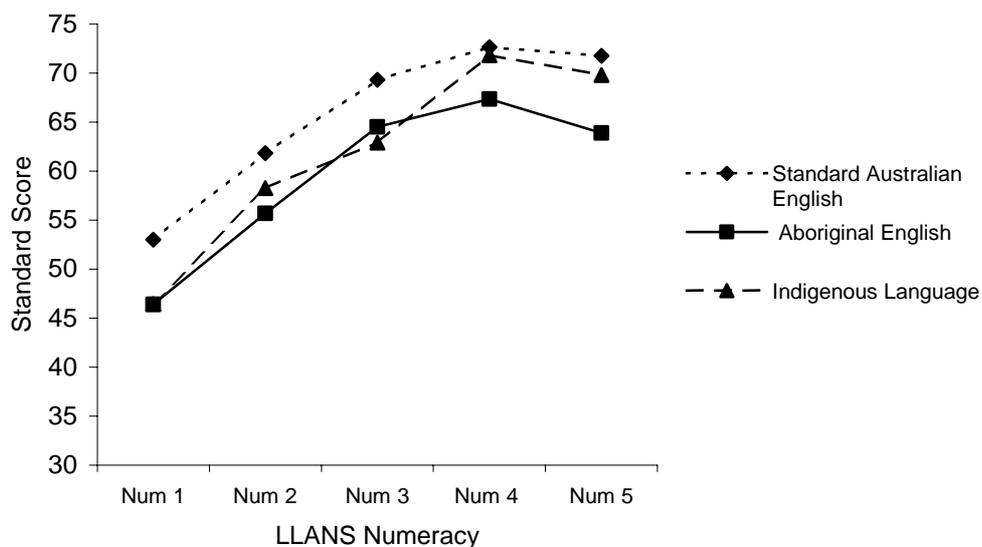


Figure 4.16 Numeracy Achievement by Language Spoken at Home

Parental Occupational Status

In 2000, teachers were asked to report the occupation of the students' parents for that year. While the occupational status of the students' parents did not predict students' performance in any of the five literacy and numeracy tests, it did provide one interesting result. Teachers marked over 20 per cent of students' mothers' and 70 per cent of fathers' occupational status as 'unknown'. Whether the teacher was or was not aware of the mothers' occupational status (including being a homemaker) did predict achievement across the three years, especially for numeracy. In contrast, whether or not the teacher was aware of the father's occupational status did not relate to student achievement in literacy or numeracy. This may be reflective of the extent to which the teacher had contact with the student's family.

Factors Which Did Not Influence Achievement

For the Indigenous students in this sample, gender, age, enrolment in preschool and the number of schools the students attended did not appear to be statistically related to English literacy or numeracy achievement in any of the analyses including the regression analyses. While the findings for gender run counter to expectations that girls will do better than boys on English literacy assessments, they are consistent with other studies in the early years of school (Raban et al, 2002). The findings with respect to mobility and preschool are not surprising as most of the students in this sample had attended preschool and most have only attended the school in the present sample. Table 4.8 presents the relevant data. While we know that 62 students attended pre-school, some of which were mobile preschools attached to the schools in the study, we know little about the quality of that experience and importantly how regularly they attended.

Table 4.8 Preschool and Total Number of Schools Attended

Student Characteristics	Number
Number of Schools Attended	
One	54
Two or more	17
Missing	40
Enrolment in Preschool	
Yes	62
No	7
Missing	42

A GROUP OF HIGH ACHIEVING STUDENTS

As an exploratory technique, Hierarchical Cluster Analysis was undertaken with the purpose of classifying students based on their achievement and growth profile across the three years. Students were clustered based on their scores on four variables: their initial numeracy and literacy scores (Assessment 1) and their final numeracy and literacy scores (Assessments 5) with the expectation that the clusters would vary in both achievement and amount of growth between the two points. A 7-cluster solution was chosen after visual inspection of the cluster dendrogram. A cluster of 11 students who demonstrated high achievement and a high growth profile in both numeracy and literacy was chosen for further qualitative analysis. It was the combination of growth and achievement that was considered important. Growth alone tells us very little about students' capabilities and conversely achievement alone tells us very little about change over time.

Overview

Table 4.9 provides information about the achievement of this group of high achieving students. From Table 4.9 it is evident that this group of students were above average in the first year of school and high achieving relative to their Indigenous peers at the end of Year 2. The clusters generally clustered on the basis of schools and this is reflected in the concentration of students from schools 5 and 4 in the particular cluster. Of the 11 students in this cluster five are from school 5, four from school 7 and the remaining two students came from schools 9 and 10. The clustering loosely on the basis of school highlights the importance of schools in distinguishing between different achievement/growth profiles. Therefore all students in this cluster come from either a metropolitan or regional background. As a group these students generally had good attention and attendance, they had only attended one school and had attended preschool. Six of the students spoke English at home and three spoke an Indigenous language. Only one spoke Aboriginal English. In 2001 these students were predominantly rated as average in English literacy and average to above average in Numeracy. For all 11 of these students the teacher knew the mothers' occupation.

Table 4.9 Literacy and Numeracy Profile of Chosen Cluster (n=11)

	Literacy 1	Literacy 2	Literacy 3	Literacy 4	Literacy 5
Mean	63.05	65.96	71.48	75.85	83.03
Std Deviation	5.6	7.9	3.9	9.6	6.0
	Numeracy 1	Numeracy 2	Numeracy 3	Numeracy 4	Numeracy 5
Mean	70.8	69.4	76.5	81.7	86.5
Std Deviation	6.1	5.3	7.3	6.0	6.8

Example Students

Table 4.10 presents the achievement profiles of four students from the high-achieving, high growth cluster and for whom additional information was available.

Table 4.10 English literacy and Numeracy Scores for Example Students

	Assessment 1	Assessment 2	Assessment 3	Assessment 4	Assessment 5
<u>Student 508</u>					
Literacy	57.8	70.5	66.4	66.1	92.0
Numeracy	63.4	64.0	73.4	92.5	97.1
<u>Student 703</u>					
Literacy	72.1	74.4	83.7	83.4	89.5
Numeracy	73.8	78.5	77.7	79.4	81.2
<u>Student 901</u>					
Literacy	64.6	64.7	72.7	88.7	81.6
Numeracy	73.8	70.8	89.5	92.5	83.7
<u>Student 1003</u>					
Literacy	63.4	62.4	82.7	83.1	87.1
Numeracy	66.2	67.6	76.7	82.2	95.6

Student 508

Student 508 started out above average and remained fairly static in the first year in numeracy and first two years in literacy. From then on rapid growth occurred in literacy and numeracy achievement. She is now one of the top achievers in the sample in both areas. This student had attended preschool and this was the only school she had attended. Her main home language was standard Australian English. Her teachers rated her as an average student in 2001. As previously mentioned parents of children at this school have the choice of enrolling their student in either a mainstream class or in an Aboriginal Unit. This student was in the latter. The teachers rated this student as highly attentive, curious, interested and focused on task. She was a regular attendee at school with very few absences. Her teacher recorded her mother as a homemaker and her father as unknown.

Student 703

Student 703 is also a high achiever, however, his profile is flatter with less growth between the beginning of school and the middle of Year 2 (see Table 4.10). The student is a male with good attendance at school and was considered in Year K to have good concentration, perseverance and to be eager to learn. His teachers believed he spoke standard Australian English at home.

Student 901

Student 901 commenced school with stronger skills in numeracy than literacy. By the end of Year 2 he was performing equally well in both areas. His teacher was not surprised about his score and commented that he had strong basic skills in both areas. However, his teacher suggested that while he was good at spelling and reading he had trouble writing stories. His teacher suggests that he is good at transferring his learnt numeracy skills to other applications. This student was receiving support for literacy and had hearing problems in 2000. There was some confusion with his teacher as to whether he spoke standard Australian or Aboriginal English. This student had excellent attention in both Year K and Year 2 with his teachers considering him to be able to concentrate despite distraction and be eager to learn and inquiring. His mother had a clerical job but the teacher was unaware of the occupational status of his father.

Student 1003

This student had excellent growth in both literacy and numeracy of nearly 30 points in numeracy and nearly 25 point in literacy. His numeracy achievement in Year 2 was one of the highest scores. His teachers were not surprised by his performance in either area. This student had good attention in all years under study with his teachers considering him to be able to persevere in the face of challenging tasks and engage in purposeful activity. This student generally had excellent attendance, however in 2001 he was away for 20 days. Student 1003 received no additional support. His mother was a homemaker, while his father was an unskilled worker.

SUMMARY

Students' developing English literacy and numeracy skills were assessed at five points over the first three years of school using tasks developed for the ACER Longitudinal Literacy and Numeracy Survey. Using these tasks enabled achievement to be investigated in relation to a standards-referenced scale that extended over the relevant time period and to which reference could be made. It was observed that for both the sample of Indigenous students and the main LLANS sample there was considerable dispersion in achievement scores at each time. In general, for both English literacy and for numeracy the achievement of the Indigenous students began at a similar level to that of the main LLANS sample but by the time of the fifth assessment point a gap had emerged.

A detailed examination of the profiles of growth for individual students within schools revealed the extent of individual variation in growth and some features that appeared to be common for the schools in which the students were located. It is important to recognise that students' growth patterns are different and that development does not always proceed in a regular ordered sequence.

Achievement at the beginning of school was a major influence on later achievement. For that reason the influence of initial achievement was taken into account in analyses of other influences on achievement. In order to examine factors, which influence growth in achievement the study, examined school and regional effects, parents' occupational status, home language and gender. For this group of students, achievement was not related to gender. Mobility and pre-schooling experience were not shown to be statistically significant due to the fact that most of the students for whom there was data had attended preschool and had only attended their current school.

Teachers ratings of student achievement in English literacy was consistent with assessment results; however only 5 per cent of students were rated as above average in numeracy which is not consistent with their results on Assessments 2 and 3.

Student absenteeism was related to subsequent achievement and levels of absenteeism were consistent across years. From a policy perspective the finding that absenteeism begins in Year K and sets the pattern for future years suggests that tackling this problem must begin very early in the child school life to be successful. The interactions between absenteeism, language and region suggest where initiatives to tackle absenteeism are most prescient. Students who were rated as attentive showed the greatest growth in achievement over time.

Students' school, region, the regularity of attendance, the quality of attention and language spoken at home appear to be good predictors of achievement growth. School appears to be one of the most important predictors of literacy and numeracy thus the features of schools that appear to predict best achievement are discussed further in Section 5.

5. LEARNING CONTEXTS: PERSPECTIVES FROM THE CASE STUDY VISITS

This section draws on the considerable array of qualitative data collected during three years of case study visits to the schools. These visits commenced in 2000 and continued in 2001 and 2002, usually for a minimum of two days each year. All of the researchers were Indigenous and all had extensive connections across Indigenous communities.

As outlined in Section 2 of the report, the researchers interviewed a variety of people in each of the school communities, including principals, teachers, AIEWs and parents. The primary aim of their discussions was to identify school and teaching practices that are inclusive of Indigenous cultures and languages, engaging for young Indigenous learners, particularly in the areas of English literacy and numeracy, and set up partnerships with Indigenous communities. A particular focus was the Indigenous children participating this study and the people who worked with them.

Eighteen school principals were interviewed during the course of the study, due to a change of principal in five of the 13 the schools. Nine of the principals were male and nine were female, each having varied experience in leadership roles and in schools with Indigenous students. The longest serving principal had been had been in the role for 18 years (11 at his current school and 42 years in the education system); the shortest serving principal had only recently commenced in the position. The teachers were predominantly female and non-Indigenous. About two thirds of them had been teaching for more than five years (seven had been teaching for more than 30 years) and about two thirds had been at their present school for less than five years.

Where possible, AIEWs and Indigenous parents were also interviewed. As the study progressed, members of the research team placed increasing importance on interviewing the Indigenous members of the school community as a way of 'capturing the Indigenous voice'.

Each of the researchers sent detailed reports back to ACER for analysis. Their reports, combined with the questionnaire data, provided a rich source of contextual information about the learning environments experienced by the Indigenous students in this study.

SCHOOL LEARNING CONTEXTS

The main sources of data about school structure and organisation were interviews with each of the principals and or their deputies, along with the questionnaires they completed, school policy documents, comments by other members of the school communities and general observations made by the researchers. The key themes identified from interview reports and transcripts were:

- recognising and celebrating Indigenous cultures;
- literacy and numeracy programs;
- other programs and initiatives
- school-community partnerships; and,
- characteristics of a parent friendly school

Recognising and celebrating Indigenous cultures

Since each of the schools was nominated to take part in this study on the basis of their work with Indigenous students, it was not surprising that the display and celebration of Indigenous cultures was for the most part immediately obvious to the researchers visiting the schools. The celebration of Indigenous cultures was most apparent during NAIDOC¹⁴ week when Aboriginal Student Support and Parent Awareness Committees (ASSPA) and community members organised cultural activities and events.

¹⁴ National Aboriginal Islander Day Observance Committee (Commonwealth funded program).

The inclusion of Indigenous studies in the curriculum generally occurred as a part of the key learning area, Studies of Society and Environment; an Indigenous language was part of the curriculum in two of the schools. In the two very remote schools there was a policy of not teaching Indigenous studies; the primary focus was on teaching standard Australian English. In one of the very remote schools, the texts were mostly localised; in the other there was increased discussion during the time of the study about teaching literacy with a broader range of texts, including those which focussed on Indigenous cultures.

Some of the schools had a particularly strong and visible Indigenous presence around the school with respect to the numbers of Indigenous people employed there. Indigenous people were employed as AIEWs, ATAS tutors, teachers and, in one school, as principal. In these schools, their presence was part of a targeted school strategy to increase the numbers of Indigenous adults around the school so that the children would see familiar faces, hear familiar languages and know that their cultural and social backgrounds were valued. The researchers commented on the importance of this in providing a balance the dominance of non-Indigenous attitudes and perspectives.

The AIEWs in the schools played a particularly important role in enabling schools to connect with local and contemporary Indigenous cultures in a dynamic way, as opposed to rather than a one-dimensional, generic version of Indigenous cultures. Senior staff and teachers at School 3 noted the important role that their AIEW had played in helping them to understand and be more inclusive of local culture at their school. Ironically, the realisation of the importance of their own 'human resource' had only come after bringing in outsiders for a professional development program on Indigenous education.

Most of the schools contained a range of Indigenous resources, many of which were purchased through their ASSPA Committees. The most common example of Indigenous texts were Dreamtime stories which prompted one researcher to comment:

There is evidence of a growing awareness of Aboriginal perspectives in the classrooms and schools. However, this needs to incorporate the more contemporary perspectives. There is also evidence of the increased use of Aboriginal resources in the classrooms and schools. However, this needs to incorporate more resources, which depict Aboriginal people in more contemporary situations. [Researcher]

Many displayed the Aboriginal flag (a couple displayed the Torres Strait Islander flag) as well as Indigenous artwork, books and posters with Indigenous themes. Parents and Elders from some of the communities conducted art and craft lessons for students, storytelling sessions and dancing programs. One of the schools had a 'local Aboriginal artist in residence' who came into the school to work with the students, whilst others organised guest speakers and visiting dance and theatre groups. Other specific examples included:

- a playground incorporating areas designed to resemble Aboriginal meeting places. All students could use these meeting places throughout the day for recreational purposes and as outdoor classrooms;
- the display of a mass wall hanging developed at the school by two Elders working with the students. Calico panels had been coloured with ochre, charcoal and coloured sand and then decorated with shells, feathers and plant materials that had been braided, plaited and woven. Other pieces of artwork that the children created with the Elders were also proudly displayed around the school; and,
- a presentation of Torres Strait Islander song and dance by a group of Year 10 high school students and Year 1 primary school students. The Indigenous and non-Indigenous secondary students from the high school had been teaching a group of Indigenous students from Year 1 at the primary school a selection of songs and dances of the Torres Strait Islands as part of a high school unit on cultural studies. As a component of the project, the Year 1 students were also taught to read in Torres Strait Islander Kriol, by parents and members of the Torres

Strait Islander community at the school. As part of the presentation, each Year 1 student read a short story in Torres Strait Islander Kriol.

Supporting linguistic diversity

All of the schools acknowledged that their students came from linguistically diverse backgrounds; this acknowledgement was most explicit in School 1 where a whole-school approach to recognising and supporting linguistic diversity was most apparent. Having a language background other than standard Australian English in this school was described as a strength rather than a barrier to learning. The approach taken at the school was based on the *FELIKS* (Fostering English Language in Kimberley Schools) (CEO, 1994), a professional development program which emerged from the Kimberleys and has been adopted in a number of areas outside of Western Australia.

The average English literacy achievement for students in this school was consistently above the mean score of the sample as a whole. The main impetus for the school's approach came from a non-Indigenous teacher on staff who had considerable experience working with remote communities. Some comments from various members of the school community follow:

...the recognition of the child's first language is very important – that it's recognised and valued. At our school we have...a teacher that comes in. She makes an oral language chart with the children and they're asked to talk about their language, what they would say at home, how they would say certain sentences at home – how we'd say it in the classroom. So what we do is show them that language is something very important, and we use language outside, we use language in the playground and in the classroom. Language that they use at home is valued and it's correct, but when they come to school, because this is the language of the school environment, we show them the difference. [Teacher]

She has gone into classrooms and explained to children that they're – different children speak different languages – she encouraged the children to speak up and tell the teachers if they speak a different language at home, and if they do speak English or Kriol or whatever. And it's amazing how the children are now more open in saying - what they do speak at home. [ATAS tutor]

She's brought a lot of stuff into the school. She's gone into the classrooms with them to learn about different languages that you know – you know some kids go into a classroom and they have three different languages that they know, and – it's just been wonderful to actually see her, a non-Indigenous person, taking an interest, and she loves what she does - and the kids. She comes up with games and with stories, and the parents like talking to her, 'cause like she's always asking them to like to come into the class and to sing songs and to do games with the kids, and she's trying to get, you know, parents involved and the elders as well. [Parent]

As an older person, I'm very happy that this is how education's gone...I have seen Indigenous children just getting left behind in previous years because there wasn't this interest, and I'm very happy. I've seen both Indigenous and non-Indigenous staff at school take the extra mile to help these children....they're very happy now. [Parent]

Researchers noted that wherever the recognition and celebration of culture and language occurred, it was appreciated and valued by parents and members of the local Indigenous communities.

Literacy programs

All of the schools had prioritised programs and professional development to lift the literacy achievement of their students. A number of the schools had been publicly recognised and awarded for their achievements in lifting the literacy levels of their students.

The most commonly mentioned literacy programs were *First Steps*, *Walking Talking Texts* and the *Scaffolding Literacy Program*. Other programs and literacy resources mentioned were *Early Years Literacy Program*, *State-Wide Early Literacy Learning*, *Koorie Literacy Links*, *Spalding and Reading Recovery*, which was the most commonly used intervention program. Two of the schools had implemented school-designed literacy programs, one based on the *Scaffolding Literacy*

Program, and both had been awarded for their initiatives. ESL teachers and teaching strategies featured in many of the schools, particularly those in more remote locations.

Whilst the small numbers of schools and students preclude an analysis of the effectiveness of particular programs, in Schools 4 and 10 the average growth in the students' English literacy achievement from Year 1 to Year 2 was slightly higher than in other schools. School 10 had implemented a school-designed literacy program that integrated strategies to support the development of oral language, phonological awareness and perceptual motor skills with *First Steps*. This school also supported literacy learning through:

- a backpack program, particularly aimed at Indigenous students who did not have many literacy resources at home. Students were given a backpack to take home and encouraged to bring work back from home to share in the classroom;
- negotiating with one of the town camps to develop Indigenous resource materials for the school, particularly books to assist the school literacy program; and,
- school produced videos of students reading, that students could take home to share with their families; designed to make learning relevant for students and encourage interest from the family seeing what their student was doing at school.

In 2001, School 4 implemented the *Scaffolding Literacy Program*, a program which has now been introduced across a number of schools with high percentages of Indigenous students and evaluated favourably in a recent report by Cresswell, Underwood, Withers, and Adams (2002). Some comments from teachers in School 4 follow:

Every lesson involves book orientation and then transformations where you look at the specific part of the text and study the words in detail. And then spelling where you break up the words into chunks, then writing where the children write a sentence similar to one from the texts. That's the routine every day [but] you look at different parts each day so you're not doing exactly the same thing...It's designed to give children confidence, not to ask them to take risks but give them answers and saying [them often so] often they remember and they can give it back. [Teacher]

...looking at the school results, it's had a big impact on children's confidence to read, and some kids who couldn't read like "Yuk Soup" and Transition books like that now read Paul Jennings books. Having said that, they haven't had such successful transfer rates. They can't pick up an unseen text and read it with no hiccups and inaccuracies, but they've got the confidence to at least have a go and read...the best thing about scaffolding [is] the confidence it's building. [Teacher]

I've seen some positive feedback with kids that hadn't been attending much – and now they're coming five days a week. [The students] have an understanding quicker than if a teacher uses all different systems of teaching... you see great leaps from the kid who's not reading at Year 1 level now in Year 2...I think what matters the most is their attendance... if they get to school on a regular basis, the chances of reading are great. [AIEW]

Numeracy programs

Numeracy programs were generally described by referring to *State Curriculum Guidelines* and the *Rigby Maths 2000*¹⁵ program. One of the schools was using *Count Me In Too*, developed in NSW. While teachers reflected on a variety of approaches to literacy, they were fairly uniform in reporting that their approach to numeracy was to include plenty of hands-on, concrete activities, many of which related to students home lives.

School 3 was involved in a research project to develop and trial contextually developed school-based Mathematic and assessment practices designed to meet the needs of Indigenous students in need of additional support. The units incorporated a range of pedagogical and assessment

¹⁵ An activity based maths program with activity/assessment books for all primary years.

practices. One aim of the project was to make mathematics contextually relevant, increase student confidence in themselves as learners and to make them actively engaged in their own learning process. Another aim was to increasing teachers' awareness of their role in lifting student numeracy and developing clear home-school links. A range of key stakeholders worked with the teachers including ASSPA committee members, Indigenous education workers and teacher mentors. The school had been publicly awarded for its work in the project.

Other programs and initiatives

Many of the schools had Homework Centres; some had tried Homework Centres but not found them to be effective. One of the benefits of Homework Centre in School 4 was that it gave students extended access to computers which they didn't otherwise have. As a possible alternative to the Homework Centre, School 3 was trialling an *In Class Teaching* program. Indigenous tutors were recruited from the community and trained to go into the classes to assist teachers by working with the Indigenous students. The tutors became part of a team with the opportunity to have input into program planning. All Indigenous students benefited, not just the few who had been turning up to the Homework Centre. The program was seen to be effective for the students and provided a positive image of the school to the community by providing work, encouraging Indigenous parents/care-givers to come into the school and become more informed about and involved with their children's education. The tutoring system relieved some pressure on the AIEW and allowed all students to have contact and input from an Indigenous person on a daily basis. Unfortunately, funding for the program only extended to 20 weeks per year.

Researchers also reported a raft of other initiatives that the schools had implemented in response to students' needs, including their Indigenous students:

- the allocation of space for a 'health room', attended by various health professionals four mornings per week, including the doctor from the local Aboriginal Health clinic;
- a school-wide behavioural management program which involved role-plays at school assemblies and gave both teachers and students a common language to talk about appropriate school behaviour and expectations;
- participation in a Commonwealth tracking program to monitor attendance and mobility;
- pre-schools on site (one school had an Aboriginal kindergarten) and mobile pre-schools which went out into the communities. These were reported to be successful in preparing students and their families for the transition to school and in lifting attendance rates of students at least in the early years of school;
- two of the schools were running IT programs for parents; and
- participation in a research project to monitor attendance and the transition of students to high school.

School-community partnerships

Closely related to the inclusion of Indigenous culture and language in the school is the extent to which the school had developed partnerships with parents and local communities. As well as providing support for individual students, community involvement in schools provided a basis for developing genuinely inclusive school curricula and teaching practices. The schools and communities in this study had developed relationships on a variety of levels.

On a formal level, Indigenous parents and caregivers were able to be members of their school's ASSPA. Some schools had particularly strong and well-attended ASSPAs; others were less active or attended by only a few. However, all of the schools had an ASSPA Committee which contributed to the school through a range of initiatives such as breakfast programs, operating the

school canteen and nutrition program, providing school uniforms, purchasing resources, organising elders to visit the schools, running homework centres and fundraising:

This year we've just finished spending about two and a half thousand dollars on Indigenous books that are written by Indigenous people. We've got books on the Torres Straits, we've got books on this area, we've got books from down south, and books from Western Australia, that we are going to put in the library. We're actually going to have a set in our own room, because we've got our own room there for the parents to borrow, so they can also help read. [Member of ASSPA Committee]

At both of the very remote schools, local communities had the opportunity for considerable input into school decision-making. In one, the parents were on the School Council and had total control of decision-making across a range of issues. In the other, the school appeared to have a very good relationship with the community but they preferred to leave more of the decision-making role to the school.

Indigenous parents and community members also attended parent-teacher nights, sports days, concerts, activities organised as part of NAIDOC week and participated in school reading programs. Teachers commented that some parents were unable to be involved in aspects of the school program because of time commitments to work and younger children, and sometimes due to a lack of confidence or uneasiness which may have resulted from their own school experiences.

It was usually the principal or another senior staff member, along with AIEWs, who took on a leading role in developing relationships with member of the Indigenous communities. The senior staff in a number of the schools made a point of visiting the homes of families and establishing contact with those outside of school.

While the principals of many of the schools described an 'open door' policy, the first point of contact for many of the Indigenous parents was invariably the AIEW working at the school. All of the schools employed AIEWs who had home-school liaison responsibilities as well as other school organisational and classroom roles. Some of these AIEWs demonstrated considerable leadership in promoting school-community relationships.

The attitude of the community has changed towards the school, they are positive, the school is a happy, safe place. But it just didn't happen, there has been a lot of legwork, like involving the community in the things that happen in the school, and they are willing to give it a go. They see something, then they talk amongst all of us, share, and ask us for our ideas and they, say 'yeah this program will be great. We will trial it'. They are always eager to try anything... [AIEW]

A parent friendly school

One measure of successful school-community partnerships is the fact that Indigenous parents choose to send their students to a particular school. Researchers noted that this could be seen as an indicator of the school's respect for Indigenous people and culture, and of parents' trust in the school. Whilst most of the schools had stable and significant numbers of Indigenous students, Schools 1, 4 and 9 reported a significant increase in Indigenous enrolments.

In School 9 there had been a great deal of thought given to developing structures and processes which would make the school accessible and welcoming for parents and thus strengthen home-school links. Comments from staff and parents about the approach taken at the school:

The Principal's office is used as a workplace – nothing more, nothing less. I don't interview parents in there, I don't interview kids in there, because I think we need to realise that a lot of the parents have particular hang-ups about Principals' offices, from when they went to school themselves, as places of authority and places of pain...it puts me at an unfair advantage to be asking the parent to come in there because the chances are that they work themselves up into a pretty fair frenzy to even come up to the school. [Principal]

I think the reason for our success here is based largely on respect. If you want respect, you've got to give respect first. If you want understanding, you got to be understanding of the problems.

Once the home gets the message that the families are very welcome, a lot of the problems sort of fade away...It's very important that the principal is seen as a friend who reaches out and, if the community can't be drawn into the school, the school reaches out and gets drawn into the home, and it seems to have worked here. [Principal]

The school has an open door policy. Parents can come in and wander around into the classrooms. I have an office with good access for parents to come in down the side of the school. The parents feel comfortable coming into the school. [The principal] is supportive in all areas of Indigenous education...He's active in everything, even outside the school. He supports ATAP meetings and comes to ATAP conferences on weekends. It's all voluntary and it's just great to see our principal come and support Indigenous education. We have four Indigenous teachers at the school and there are two teaching students doing their practicum at the school. [AIEW]

We realise that Indigenous children have been brought up differently. The principal educates teachers. We have a school pamphlet on dealing with Indigenous issues. If there is a problem at home, the Indigenous staff will go around and find out what it is. There's no racism at the school. There's more likely to be racism amongst the Indigenous kids calling each other names. The playing field has been levelled. The kids are equal, they know they are equal... The school is a safe house. There are nutrition programs for kids who don't get lunch. Kids are comfortable and parents know if they have a problem, they have Indigenous staff to help. [Parent]

IN THE CLASSROOM

Whilst school environment is an important overarching context in which learning takes place, it is the classroom that impacts most on student learning. Day-to-day classroom experiences and student-teacher relationships have a critical influence not only on skill development but on children's developing attitudes about themselves as learners, which stay with them throughout their lives. Therefore the researchers were keen to gain a sense of how school policies and programs translated into classroom practice.

The majority of classrooms were multi-aged classrooms. In most instances, they were taught by one teacher with various specialist teachers coming in for specific programs and students, including ESL specialists and *Reading Recovery* teachers. In some instances, there were different groupings for numeracy sessions, usually based on ability so that students were with different teachers for literacy and numeracy sessions. There were varying levels of support from AIEWs, ATAS tutors and other teaching assistants. Both of the remote schools had separate ESL classrooms.

Although there was a specific focus on the Indigenous students in the study, teachers were encouraged to discuss their attitudes and beliefs about teaching and learning more generally, as they reflected on issues of diversity and inclusivity. The key themes identified from interview reports and transcripts were:

- pedagogical practice;
- literacy and numeracy teaching strategies;
- cultural diversity and inclusivity;
- working with Indigenous educators,
- home-classroom links.

Pedagogical practice

A range of teaching strategies and teaching styles were observed by and discussed with researchers during their school visits. In many cases, these reflected what is currently considered good teaching practice. The researchers were keen to explore whether there were specific aspects of 'good practice' which appeared to be particularly important in responding to the learning needs of the Indigenous students in the study. Observations were mostly focussed on English literacy and numeracy teaching practices, described below, but some general themes were common across learning contexts:

Teachers spoke of the importance of hands-on learning; short, sharp activities; and providing language-rich environments. A constant theme was the importance of providing contextually relevant learning situations for students and to give students a sense of purpose in the classroom:

I do prefer more open ended teaching and trying to keep things in context and trying to give things a purpose and making all the links that I can think of... gathering of all sorts of things and ideas and ways. I don't think I do anything that fits a specific model but [activities are] done for a real reason, not some set-up gammon reason, so kids see a real purpose for learning. [Teacher]

I remember I taught here in 1970 and 1971 as well and we in our wisdom, and I was a very young teacher then, honestly believed that our Aboriginal kids couldn't get there. 'We'll look after them very nicely, but they're never going to get there.' I left and came back in 1987 and by then we'd changed our teaching style and that has had a huge impact on Aboriginal kids. Where now, they're much more purposeful and I think that's really important. If kids can see a reason to learn they'll learn. [Teacher]

Different learning styles were acknowledged as existing among both Indigenous and non-Indigenous students:

You need to be inclusive of all learning styles of all individuals, that's where a variety of tasks and changing your approaches and stuff comes in. So you're not doing, you don't just follow specific sort of dogma that excludes certain learning styles...it's for all individuals. [Teacher]

Some teachers spoke of the importance of indirect questioning and using open-ended questions, although during classroom observations, it was noted that direct questioning was more common and students often worked individually.

The use of small groups for student activities was also commonly described, although less often observed. The effectiveness of this strategy was very much dependent on the students' understanding what they were required to do and enhanced when there were extra adults in the classroom.

There was very little structure in the classroom and this confused the students - they were not told what to do, they were mostly told what not to do, usually after they had begun doing something. [Researcher]

Another common theme was the importance of the teacher-student relationship. In some classes this was observed to be particularly warm while in others, the feeling was that teachers kept their distance from their students. The AIEWs figured prominently as intermediaries where students were reluctant to come forward and ask for help, even in some cases where teacher-student relationships were perceived as 'warm'.

Teacher turnover was mentioned a couple of times as a factor which militates against the development of sound teacher-student relationships:

Even this year we've had a rollover of ten staff and you see a lot of them after two or three weeks how they bond up with a teacher. They can become very close and it's very heartbreaking when that person leaves and the problems start after that. [AIEW]

This Assessment 4 result would be quite low because I was her third teacher last year. This would have been a big upset for those kids and you can probably see that in her results. [Teacher]

The achievement data reported in Section 4 suggests that the gap between Indigenous and non-Indigenous students in the first year of schooling is relatively small; however, teacher ratings of student achievement for some students was lower than their assessment results would indicate. This suggests that teacher more positive expectations may play a role in nurturing subsequent growth in achievement.

Whilst all of the teachers in this study reported that they had a belief that all children could learn this was usually qualified with statements about the factors which inhibited their learning. The researchers gained a strong impression that these types of qualifiers reflected the level of teacher

expectations. On one hand, it was noted many teachers did have high expectations for their students, and clearly articulated this; other teachers that indicated that students were doing as well as they could given their backgrounds and capabilities:

My expectations of their [Indigenous students] finished results are lower than that of other students. [Teacher]

The Principal in one school commented that she had explicitly asked teachers not to drop their standards just because they were teaching in a community school. She wanted the teachers to extend the students beyond to their 'comfort zone' in learning. And from another principal:

If you set your standards high, they'll try to reach them, but if you set mediocre standards, they'll reach them too. [Principal]

Teacher expectations provide an important context for classroom interactions including access to resources and positive attention from the teacher. Research which looks at successful Indigenous students profiles them as having a strong determination to succeed, high expectations of themselves and having strong support from significant others in their lives.

Literacy teaching strategies

Researchers discussed and observed a range of activities during literacy sessions: letter recognition activities; songs; matching letters with pictures; oral language activities; using puppets; pre-reading activities; worksheets; acting out stories; language games; performing a play in front of another class; daily shared reading; diary writing; alphabet and sound activities; big books; modelled and shared writing; using classroom environmental print; sight word charts; and computers for writing stories. Sessions engaged students either on a one-on-one, small group or whole class bases, usually moving between these different groupings. Particular strategies that teachers indicated as being most important in meeting the learning needs of their Indigenous students included:

- showing how literacy is a useful tool to get things done in daily life;
- immersion in oral activities with lots of hands on experiences;
- lots of opportunities for one-on-one guided reading sessions;
- providing contextually relevant and interesting activities eg drawing on students' own lives (family histories) and shared experiences (reports on visiting sports stars; movies such as *Rabbit Proof Fence*);
- regular revision and repetition, particularly for students who were irregular attendees;
- lots of shared big books to extend vocabulary, sight words and knowledge of sentence patterns and sequencing; and,
- explicitly looking at differences in home and school language use.

On average, Year 2 teachers reported that that they conducted a literacy block (2-2.5 hours) during the first part of the morning and followed this with a numeracy block (1-1.5 hours). A different approach had been adopted in one of the regional schools where teachers began the day with a 1.5 hour numeracy block and followed this with a two hour literacy block. The numeracy activities encouraged late-comers to arrive earlier, and those who did arrive late were still able to participate in the literacy session.

Some quotes from teachers' questionnaires indicate particular areas of emphasis in their planning:

Children are encouraged to talk in all activities, talking ideas are noted and always recounted. Children bring from their own experiences to encourage writing and reading.

They just need to be exposed to lots of print and words around the room and lists of things hanging down.

The most important thing is reading and that's working sitting down next to one of the students and reading a book with them.

The work we're doing at the moment is based on a sense of place and history and the children are writing their own histories.

Familiarity, context, repetition, variety, fun, practical, games, regular practice, routine, rigour, high expectations, individual attention, independence.

Contextualising real language opportunities; enjoyment, games, songs; low risk safe, comfortable learning environment; constant/consistent language through all areas.

The main factor was not so much a particular program but the knowledge and ability to introduce a range of teaching strategies to identify and support a particular child's learning needs. Underlying this approach is an accompanying belief that all children can learn.

These teachers are not prepared to allow a child not to succeed or slip back. They look for new ways to attack an individual or class problem e.g. one teacher was unhappy with the reading level of two of the Aboriginal girls in her class. They were reading at Reading Recovery level 10 but with much difficulty. She decided she needed to do something and implemented the Fitzroy Program and Reading Recovery techniques. To her surprise they have accelerated to level 20. Their handwriting is now also very good and they are displaying pleasure at their success. It seems the teachers adopt strategies to enhance both skills and self-esteem. [Researcher]

And from a principal with many years of experience in the education system:

Literacy learning has to be pretty explicit in how you do it. You can mess around with Indigenous kids and how you teach them and that sort of stuff, but I think you really have to be explicit in your understanding of what they need to know in terms of language structure and these sorts of things. One of the problems with Indigenous education in some of the more remote places is that this doesn't happen. A lot of kids attend school but good teaching practice doesn't take place. Without it, you don't move anywhere. [Principal]

In two of the schools, *Walking Talking Texts* were used as an integral part of the literacy program. Some comments from teachers in School 1 on their use:

What we've been using in our class is *Walking Talking Texts*. This has been put together by Fran Murray, who worked in Arnhem Land in the Northern Territory with Indigenous children, and she's worked out a program that's very sequential, looks at going through a process where Indigenous children are given the network of language that they need in order to speak about the book, experience the things that the book wants them to read about, and then expose them to reading the book. I find it works with all the kids regardless of their background. [Teacher]

I'd just like to say that *Walking Talking Texts* has been a brilliant program that's been devised for here... from the beginning of this year I found the students very weak with literacy, this has really brought out their confidence in their literacy because they use language not just orally, but in their written stuff that they weren't using before, so their vocabulary has become very rich. [Teacher]

Before *Walking Talking Texts* I just went with how I always taught and I wasn't really engaging the children like when I was teaching in other mainstream schools, didn't work with these kids, and you really had to dig deep to find out what really got the kids going. Before I was doing a lot of guided reading and their reading age was very good, in comparison to the other classes' tests, but their writing was still very average. But I find with *Walking Talking Texts* it works. [Teacher]

The operation of *First Steps* in schools meant that most of the teachers used the *First Steps* continua and kept running records of where students are up to in their English literacy development. Pre-prep assessments were used some schools as were standardised reading tests and school-based assessments, some of which included Aboriginal perspectives.

Both of the remote schools used ESL Profiles to assess the development of English language skills. In one, the students were regularly taped and the tapes transcribed. The teacher described how the tapes were later played back to students so that they could hear how their skills had developed. She also noted the importance of listening to students individually:

...for your own understanding of where the kid's English is sitting. Because it's sort of a group knowledge going on in the classroom, because they all help and call out ...that can actually make it appear they have learnt more than they have. When you take them away and do some reading and talking about a book together and tape it and do the transcript - there is often less of it going on than you thought, when you take them away by themselves. [Teacher]

Student achievement was praised and celebrated through work displays, stickers, awards, notes home and other forms of positive reinforcement:

The teacher also said that she promised her reading group that when they got to level 20 she will throw a party for them, where she would buy all the food. The party was due to be held the week I was visiting. [Researcher]

Numeracy teaching strategies

There appeared to be a remarkable similarity in the way that these numeracy sessions were conducted. While worksheets were probably used in some classrooms more than others, most of the numeracy sessions involved lots of concrete, hands-on activities based on everyday experiences. Activities included: games (eg Go Fish, Snakes and Ladders); playing with money; sorting, classifying, grouping, ordering and matching objects; oral counting (rote learned and in songs); and counting of objects. Students were observed weighing objects and placing them in order from heaviest to lightest; estimating and recording weights and lengths of objects; responding to flash cards; and sharing out pieces of fruit in an introduction to fractions.

Teachers who responded to the 2002 questionnaire reported that they spent around one and half hours per day with numeracy sessions. As with literacy sessions, they moved from whole group activities to small group work (where students were often grouped according to ability) which also afforded opportunities for one-on-one work, then back to whole groups again. In one class of Indigenous ESL students, with high levels of absenteeism, each student has an individual folder with work graded at different levels so that they could progress through each level when ready.

Repetition was mentioned frequently as important to learning in general, but also for students who were frequently absent. There was also general agreement regarding the importance of literacy and a focus on oral language in numeracy sessions. Key concepts which emerged across schools included the importance of:

- teaching skills in real life contexts;
- ensuring that students have sound basic number skills;
- reinforcing concepts through structured activities and semi-structured play;
- providing some low-risk opportunities for students to gain confidence;
- providing opportunities to explore the language of mathematics including talking, writing about and rewording mathematical concepts; and
- building on what children already know.

A consistent point of discussion was the importance of language and literacy in relation to numeracy. This was mentioned in a couple of cases when teachers were reflecting on students' numeracy achievement, particularly in Year 2:

Looking at it (ACER graph) quite quickly, I feel perhaps it might be the numeracy language that could be the barrier causing her to have a little bit of trouble... I think she herself prefers the literacy activities to mathematics...Maybe this is because literacy can fit with her life at home with reading and talking about stories and that. With the Maths area, her parents don't have a lot of that knowledge in the way we present it in the classroom to bring that along, language wise, and that could be what's happening here. [Teacher]

I think Maths at a younger level is more practical and now it's getting to more theoretical based work, so that's why I think she has a struggleShe does speak Aboriginal English so if her

understanding of Standard Australian English isn't so good, that can have an impact on Mathematical understandings. [Teacher]

Hence, when teachers described the most important aspects of their numeracy sessions, literacy and mathematical language was nominated as an important area:

A problem area though is the language of Maths. Reading is a problem such as 'How many times will 3 divide into 24?' If I just put 24 divided by 3 on the board, they'll tell you 8. But "How many times"... it's the literacy that breaks down before the numeracy. [Principal]

They find it quite difficult actually, especially when it's got a sum like a written piece like, 'There are five birds in a park and three fly away.' Going from that to the symbolic, they have a lot of trouble, they just want everything to be a "plus" sign. [Teacher]

Other teaching strategies incorporated visual activities and involved repetition to increase student confidence as mathematical learners:

We did a survey of how many people walked to school, came by car, bus...and then we graphed it. We talked about a graph, how a graph is a picture, not a normal picture that you see everyday, but it's a form of a picture that can give us information. I think that's a very visual thing. We refer to that every now and again [Teacher].

We do a lot of mapping and graphic representation of things. Mainly I suppose it's to give a little bit of variety too, but also things that are enjoyable and that the students can see the point of doing it. Probably the most important thing is to teach functions intensively and to allow students to have the time to really, really get the hang of what they're doing. I find that gives them a lot of confidence with doing other things well. I think that they enjoy that. [Teacher]

There was not much discussion of numeracy assessment in the interviews. There was general agreement that the students had enjoyed completing the LLANS numeracy assessments, and a couple had achieved results higher than expected. Teachers at School 3, participating in the *Mathematics in Context* project, reflected on their different orientation to assessment since participating in the research:

Now I'm interested in how the students think, not just how they test. [Teacher]

Assessment tasks used in the *Indigenous Numeracy in for Indigenous Students in Secondary Schools* (INISSS) project (Callingham, Griffin and Corneille, 1999) were a reference point for another teacher:

They're more hands on, teaching children how to think mathematically and verbalise what they're doing in their mind when they're solving a problem and working out things in mathematics. And giving them real life activities and the children in the class...it's great to see how they go in their mathematics assessment, it's so inspiring. [Teacher]

Cultural Diversity and Inclusivity

In 2000 and 2001, teachers spoke in general terms about the inclusion of Indigenous perspectives in the curriculum and providing contextually relevant learning experiences for students. There was much variation in the extent to which teachers were able to articulate what it is that they did as so much of teaching is conducted 'on the run'; teaching theories can be intuitive and not expressed.

In 2002, these teachers were asked to reflect more specifically on issues of diversity and inclusivity and how this impacted on their teaching of Indigenous students. This was in response to the observation by researchers that whilst the recognition of Indigenous culture was apparent to some extent in each of the schools, there were questions about how this readily is translated into the classroom practices. Teachers' comments on issues of diversity and inclusivity in the classroom included the following:

I think [this school] is a fantastic school to work at simply because of the teachers being exposed to the degree of cross culture, and my classroom is quite a rewarding experience for you as the teacher's role and you learn a lot from the students. And the sense of community...I've gone to

many schools but I like that sense of caring and community [here]. That is within the teaching staff and within the school population, and that's a very nice thing in the school. [Teacher]

We do a lot of Koori literature, a lot of the books we read are Dreamtime stories, and that sort of thing...we often talk about being Koorie and being Bangladeshi and Indian. It's such a diverse place and kids are very accepting of the diversity...they really are in this school [Teacher]

I think the fact that there are so many cultures makes it easier because you don't have to think, 'I've got to be inclusive.' You are! Because if you aren't you sink. [Teacher]

...we try to fit our programs to the needs of children rather than fit children to programs established [Deputy Principal]

However, the books and resources that were in schools and libraries were generally not on display or in use at the time of the researcher visits.

I was a bit surprised actually at the lack of Aboriginal representation in the classrooms given the heightened awareness of the school about Aboriginal kids who are now half of the school population. [Researcher]

...and the above quotes contrasted with the following...

I don't do a lot in my class because they go to [xx] the Indigenous Teacher and do Indigenous Studies [Teacher]

Yes, I think so [we try to] be aware of where they're coming from and do the best we can that's fair to the other children [Teacher]

When commenting on diversity, many of the teachers focussed on students' linguistic diversity, although questionnaire data reported in Section 4 would suggest their knowledge and understanding of the language backgrounds of their students varied particularly with identifying non-standard Australian English. While over one third of students were identified as speaking an Indigenous language, Torres Strait Islander Kriol or Aboriginal English as their main home language, their identification was not consistent across teachers.

The recognition and valuing of the other languages and dialects that learners speak has important consequences for teaching practices. Most teachers referred to the strategy of modelling standard Australian English but varied in the extent to which they conveyed an attitude of valuing students' home language. For example, a couple of teachers referred to students' bad or poor English, consistent with a view that the aim of teaching standard Australian English was to replace an inferior home language, rather than to give students an additional language resource to use in different environments.

A couple of the teachers had undertaken professional development courses which looked at how to support the learning of Standard Australian English for children who speak an Indigenous Australian language, including Kriol and Aboriginal English as their first language. This approach is an empowering one for students as it explicitly teaches them about language and invites a metalinguistic understanding of code-switching from an early age.

I used to think up until a few years ago I used to think that most of my kids could talk English and there were a few that couldn't, and after doing FELIKS workshops and ESL, I think it's more like 90% are ESL and the rest aren't. [Teacher]

Until about probably five years ago when I went to the ABC Aboriginal Language course...I honestly thought that when people talked about Aboriginal English, they meant far away from Perth. I thought Aboriginal English meant Kriol. I didn't understand at all, so I've come a long way. [Teacher]

Strategies to further increase teacher understanding of the cultural and linguistic backgrounds of their students were seen as an area of need by some of the Indigenous parents interviewed:

I would like to see all teachers take a few lessons in Kriol, because the majority of the kids would speak in Kriol, and I would also like them to try to understand the background of these kids, where

like some kids won't look at you when they're talking to you 'cause they're not meant to. Then the teacher gets quite upset and says, 'Look at me', and the kids are looking away. You know, they need to understand some of the customs of where these kids are coming from. [Parent]

I think the main thing for this school would be for the teachers to more sensitive to the children that they have in their classrooms because most of the classroom have three quarters Indigenous kids. There are some teachers who are sensitive to those needs, and yet there are some that aren't. If it was part of their, you know, professional development to be more culturally aware on what is going on, then a lot of the kids probably wouldn't be sitting in the office or, you know, wouldn't be struggling if the teachers had some idea of where these kids are coming from. [Parent]

Non-recognition of diversity, reflected in comments about treating all students the same, is not about equality in the classroom. 'Treating all students the same' is about maintaining the dominant culture and not recognising minority cultures. Research which has looked at successful Indigenous students has found that they have strong personal and Indigenous identities, and see themselves as successful learners.

Where teaching was inclusive of Indigenous cultures and language, the AIEWs and Indigenous parents commented favourably in terms of outcomes for both Indigenous and non-Indigenous students.

Working with Indigenous educators

The nature of the AIEWs relationships with teachers and the extent to which they were involved in classroom activities had a significant impact on teacher awareness of Indigenous issues and their inclusion of Indigenous perspectives in their teaching. In one school, the AIEW's role was restricted to following up messages to and from school and chasing absentees. At another, the AIEW had her own room which contained a large number of Aboriginal resources, many of which she had developed herself. She was involved in a range of classroom literacy and numeracy activities and visited the community with the principal. She met with the ASSPA regularly and recommended resources to be reviewed for use at the school. A comment was made at this school; they employed an Aboriginal Education consultant to inservice staff but during the session found that the best person to inform them about Aboriginal issues was their own AIEW.

AIEWs were variously responsible for tasks such as building relationships between community and school, organising Elders to visit the school for cultural activities, organising tutors, ASSPA meetings and the homework centre for primary students, liaising with families (from saying hello to helping families move interstate to escape a 'bad situation') and working in the classroom. In the classrooms they worked with small groups of students on literacy and numeracy activities and with individual students, developing their self-confidence. They shared ideas with teachers which sometimes formed the basis for an art lesson or a new unit of work. They took groups of students for 'culture walks' and attended camps. One AIEW commented that the employment of additional ATAS tutors had helped enormously in freeing her time to do just some of these many tasks.

At one of the remote schools there were weekly 'learning together' sessions that involved the Indigenous AT and AIEWs along with the classroom teacher and ESL specialist. The researcher believed that this had a significant impact on the staff's understanding of how students learn. A team approach worked well in other schools as well, providing a forum to focus on planning, sharing, passing on what works, and encouraging problem solving and group resolution for identified areas of difficulty. The process of sharing experiences enabled teachers to engage in a process of reflection.

Some comments from Indigenous educators and parents highlight the extent to which they, and the students, valued an Indigenous presence in the schools:

(Teacher was asked if the Indigenous students see her as one of them) Yes they do, they see me...and I think they find it easier to talk to me about issues, you know, like black and white issues, and they don't feel they can't come and tell me someone, you know, this person did this

and you know, they can talk to me about things. And I found even with the parents, they'll come and tell me things that are happening at home, you know, and they're able to talk to me, and there is a difference. [Indigenous teacher]

It is with the Indigenous students because I am Kriol speaking, and I find it...I also know if the book is far from what the students know about and can adapt something that they're....that they can comprehend....make it easier for them to understand. [AIEW]

I really feel that [xx] being Aboriginal in her own self has that inner quality to make the parents – and they actually feel that because she is Aboriginal they – I think it's just a thing...they feel comfortable in coming and she makes them comfortable....they sit and watch and feel part of – they feel at ease and feel part of the class. [Parent]

I've seen some children that are really scared of coming to school – and when the teachers' go louder – I just walk along and say "What's the matter?" ...I know how they're feeling. After that, after a bit of a cry, they'd slack off and then they settle in the school. I think that environment is very important because a lot of our children are – some children – I know a lot are very(?) and keep a lot of feelings within. [ATAS tutor]

Cultural aspects are included all the time. Every morning I go around to the classrooms and do my PC – pastoral care, making sure that the kids are here, mainly the ones that are not wagging and stuff...I do stats every four weeks on the Indigenous kids. If they're not at school the first day, then I make a phone call to the parents. Then if they're not here the following day, what I do is go and make a home visit. I go in every day (to the classroom) and see the kids and the teachers and sit down with them, and help them along if the teachers need extra support in the classroom. [AIEW]

Every second or third – at the Unit meetings when the teachers meet for their Unit meetings, like with the early childhood – I try to go to the Unit meetings and then I say to them, 'What can we do for the Indigenous perspective to put into the curriculum for next term?' [AIEW]

Home-classroom links

A final point of discussion, and one which was a particular focus in 2002, was the nature of the link between the classroom and the child's home. These discussions covered a number of areas including the extent to which parents and care-givers were actively involved in their child's education as well as the extent to which the teacher demonstrated a knowledge and understanding of the children's home lives and was able to use this knowledge to provide contextually relevant and engaging learning contexts to best meet students' learning needs.

Discussions of the students' assessment results highlighted benefits of parents and care-givers being actively involved in working directly with their children on learning activities in the home, for example, reading with their children with reading and supporting homework.

...she's getting quite a bit of support in the home with her Mum and reading and the language there. She's got good concentration in the classroom, she enjoys language, she always attempts to be involved with everything we're talking about and doing. .

She's one of the top performers in the classroom...she gets a lot of support from home which is helpful. She does her homework, she brings her readers back regularly, she does all those sort of things...she's still aware her Indigenous background...and she is also able to cope in a mainstream classroom.

He's a little boy that has confidence with his language, he enjoys language, he enjoys text, he has a great deal of parents' support at home. We know that his parents help him with reading nightly. That's one of the biggest things that we notice if a parent is helping with their spelling homework, reading, talking about stories...He's a problem solver, he uses good language in the classroom. He has no difficulty in understanding the language in numeracy. His Mum comes into the room quite a lot to support. [Teacher]

More passive forms of involvement were also discussed; such as attendance at information nights and interviews. While some attended, others chose not to. Some parents were more comfortable

with participating in social, less formal activities and teachers were able to establish contact with them at sports days, excursions, coffee mornings, school concerts, cultural and craft activities, when parents dropped students off and outside of school at the local community club.

...there is a lack of what we know as Balanda as involvement in education and the school... the things that we see as involvement like coming up to the school, coming into the classrooms, collecting reports, turning up for events you know those kind of thing that Balanda see as being involved...teacher things you know [but] I know if I go down to the club, a lot of the parents of my own class will come to me and talk to me. [Teacher]

In a couple of schools, there was push for parents to undergo training as ATAS tutors. As well as benefiting students in the classroom, teachers at these schools noted an increase parents' confidence with respect to being involved with and discussing educational issues. The involvement of parents at schools can increase their understanding about how schools operate and their role and confidence in supporting their child's education, it enables a smoother home-school transition, can encourage student attendance and educational success and, on a deeper level, assists in building community capacity.

Most of our tutors now that we've got in the school that are ATAS¹⁶ tutors are actually parents. I've been pushing really hard for the last year, you know, to try and get the parents in. 'Just come and do the training and if the job happens, the job happens. If it doesn't, you're just more aware of how to help your own child.'...So I think all but maybe four of our ATAS tutors are actually parents now. So we're starting to get the parents in, which is good for the kids to see their parents at school and they think, "Oh, this is good", and they try just that little bit harder because their parents are at school, so they see them all the time. [ASSPA Committee member]

As well as parents and care-givers being involved in school education, researchers were keen to explore the extent to which teachers had an understanding of their students' home backgrounds the ways in which they were able to then make connections between home and school learning.

Both teachers and students from School 10 visit one of the local town camps. As well as teachers gaining an insight into the students' backgrounds, the students from these camps develop a sense of self-value by assisting visiting students explore the environment of their camp from a cultural perspective. The students from the camp are able to demonstrate their own knowledge and become the teachers. In School 1, a similar activity takes place:

we actually went into the community and had a class a few times. A lot of these children have lived in X Street...they have a hall there...and we walked with the children or with a bus took us there to the hall and we had a day out in the community. Twice we went and we had a couple of the parents come down 'cause they knew we were there – come down to watch their children – work at the hall. I think that was probably Dads mainly because that was sort of going to bridge into the community and where the parents are to feel – I think less threatened by a different culture...I think just to encourage them to – I think to let them know – the parents know that they're – they are a very positive force in their education and that we can often learn from them...[ATAS tutor]

While principals and senior staff members in a couple of the schools visited parents and attended community group meetings, teachers were sometimes not involved with local parents and communities to this extent. In one school, links with students' home lives appeared to be actively avoided in the classroom; the general perception was that 'life was tough' at home for these students and school was a place where they could 'get away from it' for a few hours'.

In a couple of schools, researchers developed strong impressions that teachers had little contact with Indigenous families outside of school:

It did not seem to me in the times that I saw them operating and in discussions with them that they had much knowledge of other Aboriginal things taking place within the town and therefore having discussion points with the children that might be related to school, home and community activities.' [Researcher]

¹⁶ Aboriginal Tutor Assistance Scheme (Commonwealth funded program).

Comments about the need to strengthen home-classroom links were made by a number of members of the Indigenous community. It was recognised that this was not always easy but it was seen to be of paramount importance:

You've got parents here who have wonderful stories to tell your kids...if you just have a day when you're doing stories or literacy or something, ask the parents to come in and tell a story and then get the kids to maybe draw pictures or to retell it in another way...having such a large Indigenous population, people think it's a thing that just happens, but it doesn't. It takes a lot of work. [Parent]

I think for some teachers just understanding the way in what the Indigenous students learn a lot of the teachers have been here for so long and they still, I don't think, understand it fully...If they had a general idea of the type of families that these kids come from, you know, it might just open their eyes just a little bit more to what the needs of these kids actually are... there's a lot of kids who want to learn but they don't know how to, and you know you try to explain to them that at home, you know, you've got Mum and she's got four other kids that are small at home, and they've got this one here, you know. And this little boy has to grow up so quickly 'cause he's got to look after his younger brothers and sisters, and he's not going to be doing his homework as well as what he could be, because he's got to grow up really quickly to be the man of the house, you know - he might only be eight or nine himself. [Parent]

This type of activity would be supported in other schools; parents and AIEWs expressed the view that students would benefit greatly if more teachers had contact with local Indigenous communities. Researchers developed strong impressions, in contrast to the activities of senior staff, a number of teachers had little contact with their Indigenous students and their families beyond the class/school boundaries and knew very little of the social and cultural contexts of their students' lives.

I'd like to see all the new teachers go through a cultural awareness programme before they set foot in here then they have an idea. And one of the ideas that [xx] mentioned to me if that at the start of the year or the start of the term, we get them all on a bus and take them to the town camps and they can see where they're (students) are coming from. Otherwise they guess they know Aboriginal kids but they don't know what their background is. [xx] for instance has been here two or three years now. I used her one day to help me take a kid home and she said straight out, "[xx], this should be put up that we take all the teachers out".....[AIEW]

I'd like to see that happen. That we can just take them (teachers) home, have a look, introduce them to some of their (student's) families. Because it's not always that the families should come in here (to the school), the guardians come in here. Let's go and meet them in their environment where they feel comfortable. []

SUMMARY

The qualitative data presented in this section adds to the quantitative data presented in Section 4 to provide paint a more detailed picture of the some of the important factors that are conducive to the learning for this group of Indigenous students, particularly in the areas of English literacy and numeracy.

Schools had initiated many programs to enhance educational outcomes for their students, some of which had a particular focus on the learning needs of their Indigenous students. School-wide recognition and celebration of Indigenous cultures and languages was viewed positively by the Indigenous community and facilitated positive school-community partnerships. School community leaders, both non-Indigenous and Indigenous, played an active and leading role in ensuring a consistent approach across classrooms.

The implementation of structured and focused English literacy programs, often accompanied by professional development, and of programs designed by the school in response to students learning needs provided a shared vision and common language for teachers to talk about and reflect on their literacy teaching. The same clear focus was not evident for numeracy although there was remarkable consistency across schools in their approach.

Although many of the school personnel interviewed demonstrated good teaching practice, some awareness around issues of cultural diversity and inclusivity, and high expectations for their Indigenous students, there was some concern amongst researchers that this was not consistently experienced within schools. The degree that teachers established links between home and school learning also varied.

The involvement of Indigenous parents and communities in their children's learning was regarded as an important strategy to support students. Students are empowered and feel confident at school to the extent that their communities are empowered and feel confident in the education system.

6. THE FIRST YEARS OF SCHOOL: CONCLUSIONS

The data collected over three years in the lives of the students in this study provide a series of snapshots of their growth in achievement and experiences of schooling in the early years. The assessment data presented in Section 4 showed that they commenced school with a broad range of skills and abilities, statistically not dissimilar to many non-Indigenous students. Whilst school and geographical region accounted for much of the variance related to growth in student achievement, a number of student-level factors were also identified as related to growth in achievement, including initial achievement, language backgrounds other than standard Australian English, attendance and attentiveness.

The data presented in Section 5 explore the school and classroom contexts experienced by the students; social and cultural dimensions of learning which are not as readily quantifiable. The case study reports by the researchers describe both school and classroom learning contexts experienced by children, highlighting those which were assessed as conducive to supporting student learning, particularly for Indigenous children. The extent student growth in achievement was related to a combination of student, classroom and school level factors, each of which influenced the other.

In 2003, a research team meeting was held to examine the results of the data analysis. The researchers discussed their experiences across schools, across time, and in the light of the assessment results. While the main aim of the project was to highlight examples of successful practice, the researchers noted that at times they met with resistance from interviewees, observed classrooms where students were not engaged and were faced with comments about Indigenous people which they found challenging. It is not the intention of this report to give inappropriate weight to these instances; however, it is important to note that there was not a consistent approach in all of the schools.

The researchers agreed that some schools appeared to operate more effectively than others; their conclusions agreed with a trend for some schools to have a higher average growth in student achievement than others. The insights brought to this discussion drew on their experiences in the schools as educational researchers and also as Indigenous people, each with long and considerable association with schools and education systems. Some of the key underlying factors that were present in schools which supported growth in achievement for Indigenous students included:

- leadership
- good teaching
- attendance and engagement
- Indigenous presence at the school

LEADERSHIP

One of the key factors conveyed in the case study reports as being central to how the well the school supported the learning of Indigenous students was in the strength of its leadership. Many of the school leaders identified in this report displayed a strong leadership committed to continually trying to improve learning at the schools for all students to achieve their potential. A key characteristic of leadership was their ability to be pro-active in reaching out to the school community. For Indigenous students, this meant reaching out to the school's Indigenous families, and identifying and connecting with Indigenous leaders, which variously included ASSPA Committee members, AIEWs and other Indigenous people associated with the school community

Researchers themselves noted that they had an immediate sense of the quality of leadership through the way that they were treated at the school. The degree of respect and hospitality that they were offered as educational researchers and as Indigenous people appeared to be greater in schools who

had formed positive and respectful relationships with local communities and actively interacted with parents in a warm and affirming manner.

The opportunity to work longitudinally with schools provided a timeframe where researchers could determine the extent to which the leadership was reflected in and maintained by the school's culture. In schools where leadership was dispersed, through a team of educators and parents, the school culture maintained the initiatives once principals moved on. There was a sense that the entire school community was drawn together to support the learning and well-being of students.

GOOD TEACHING

Much has been said about the importance of quality teaching, a current hot topic in the media. Many research studies attempted to define what it is to be a good teacher; a smaller body of research has defined what it is to be a good teacher of Indigenous students. The design of this study didn't allow for a statistical analysis to contribute to this discussion; however, the observations of the research team highlighted a number of these qualities.

Although the focus was primarily been on the development English literacy and numeracy skills, the researchers noted the extent to which classrooms provided environments which supported personal and social development of students as well. The most impressive classrooms were those with teachers who valued the experiences and qualities that students brought with them to school, and demonstrated a commitment to a belief the all children can learn and have the ability to succeed.

Another dimension to this discussion was the value of having Indigenous educators in the classroom. It was agreed that Indigenous people can more easily connect with Indigenous children and there were examples given where this was noted during case study visits. However, there were also examples of Indigenous educators who were not effectively engaging the students in learning. Finding a balance between supporting cognitive and academic development alongside social/emotional development is sometimes difficult.

STUDENT ENGAGEMENT AND ATTENDANCE

The data collected regarding attendance showed quite a range in the levels of attendance. Some students missed a considerable amount of schooling during their first three years of schooling and this is reflected in a lower growth in achievement. One researcher commented on what he assessed to be a very enthusiastic, committed and skilled teacher; however, the non-attendance and lateness of several students meant that whatever was offered at school in the morning was not being experienced. For students to become engaged at school, they first have to be there. For students who do not speak standard Australian English at home, school is a primary source of exposure to standard Australian English and mathematical language.

However, assessment results for some regular attendees also showed a slower growth in achievement. Attendance at school is a necessary first step for exposure to school learning opportunities; however once at school, students need to be engaged in interesting and challenging lessons to stimulate learning and, hopefully, to reinforce their attendance and desire to come to school.

INDIGENOUS PRESENCE IN THE SCHOOL

Much has also been said about the importance of involving Indigenous peoples in partnerships with schools to support education of Indigenous children. The design of this research did not quantify levels of parental involvement, although for a number of children that were working well at school, positive comments were made regarding the support that they received at home. The extent to which parents were engaged in an active role at the school varied; the researchers commented that

the involvement or not of Indigenous parents was a matter of choice and sometimes a reflection of the institutionalised racism that they themselves had experienced when in school.

Schools which had targeted strategies to increase an Indigenous presence on site, whether through an active ASSPA, the employment of Indigenous staff, or training of ATAS tutors, received positive substantial support from community. The researchers believed that this presence had a positive impact not only on the students but also on the parents. As well, the parents had a greater confidence in knowing who would be watching over their children, rather trusting that the 'system' would do this.

The increased knowledge about and involvement in school education of a few key Indigenous people had a ripple effect and strengthened the capacity of other members of the community to be actively involved in their children's education.

ONE RESEARCHER'S JOURNEY

The journey I have taken, observing the students in the classroom from Kinder to Year 2 has provided me with an opportunity to observe the interactions between Indigenous students and their teachers. One of the key findings that I feel I have is that the 'culture' of the school is critical i.e. the way the school is managed, the cooperation of and between staff, the support provided to teachers and AIEW's by the school, links with the community, valuing of AIEW's and their level of experience and expertise in the area of Indigenous education. Other contributing aspects also include the attitude of the classroom teacher and their preparedness to seek out and take on new information that will assist them in their teaching and relationships with Indigenous students and the community.

Having an opportunity to observe two schools over the three years has provided me with an opportunity to consider what is really happening in schools and contributing to Aboriginal children not achieving equitable educational outcomes to that of mainstream children. While the schools were different in size one had an enrolment of 70-80 and the other 750, one would expect that the larger school would be struggling more than the smaller school. However, the excellent management and teamwork at the larger school has shown it to be the more effective school. Both schools have access to special programs and funding however the larger school is more effective and having a more positive effect on the students and community. The difference in the schools is the cohesion and teamwork. The small school is divided whereas the larger school encourages and supports team work.

I feel we must give very serious consideration to the way education is delivered to Aboriginal children and consider the aspects that I have mentioned above. While there are other aspects that also need to be considered, I feel that if we address some of these issues we will make a huge leap towards making school education a positive experience for Aboriginal students. [Lee Simpson]

CONCLUSION

From 2000 until 2002, this longitudinal study followed Indigenous children from the first year of school to Year 2. The 13 schools that participated in this study were all recommended by State Education Departments and were considered to evidence 'best practice' in regard to Indigenous education. Across the three years a total of 152 students participated in the study. Sets of recently developed assessment materials (from another larger national study) were used to assess literacy and numeracy skills over the course of the three years. In addition all schools were visited at least once each year by an Indigenous consultant who collected data through questionnaires, interviews and observation case study and who subsequently wrote a case-study report.

The study provided a picture of Indigenous students' literacy and numeracy development in relation to a broader Australian sample of students. It has highlighted a number of factors that may impede Indigenous students' literacy and numeracy. In addition, it examined the features of the particular schools that influence not only literacy and numeracy achievement but also personal and social development. Although an apparently widening gap between Indigenous and non-Indigenous

student outcomes over these years of schooling is a matter of general concern, the study also draws attention to the range of differences among intervals and schools in literacy and numeracy growth.

Those differences can provide the basis for understanding the factors that promote the development in the foundation areas of literacy and numeracy. This study has pointed to some of those: a good start; attendance; engagement; supportive teaching strategies; strong links between schools and their communities; and school environments that recognise Indigenous cultures. More needs to be understood about the progress of Indigenous students through the early school years and how those foundations provide for further development through the middle primary years. This study provides a beginning to what should be an ongoing program of research and thoughtful evidence-based action.

REFERENCES

- Adams, I. (1998). The educational plight of Indigenous Australian students in the early years of schooling. *Unicorn*, 24(1), 5-15.
- Anderson, P. and Meiers, M. (2001). *Better than Beige: Designing Assessment Tasks to Enhance Learning and Measure Growth in the Early Years of School*. Paper presented at the Australian Association for Research in Education Conference, 2-6 December, 2001, Fremantle, Western Australia.
- Batten, M, Frigo, T, Hughes, P and McNamara, N (1998). *Enhancing English Literacy Skills in Aboriginal and Torres Strait Islander Students: A Review of the Literature and Case Studies in Primary schools*. Melbourne: ACER Press.
- Bodey, W., Darkin, L., Forster, M. & Masters, G. *DART English. Middle primary. Developmental Assessment Resource for Teachers*. Melbourne: ACER Press.
- Callingham, R. & Griffin, P. (2002). *Summary report of the INISSS project, 1999-2001*. Armildale: UNE.
- Callingham, R.A., Griffin, P. & Corneille, K. (1999). *Using performance assessment tasks to assess numeracy outcomes: The INISSS project assessment process*. Paper presented at the Australian Association for Research in Education Conference, Melbourne, Dec 1.
- Catholic Education Office (CEO) (1994). *Fostering English Language in Kimberley Schools, (FELIKS)*. Broome: Catholic Education Office
- Commonwealth Taskforce on Child Development Health and Wellbeing. (2003). *Towards the Development of a National Agenda for Early Childhood. Consultation Paper*. Commonwealth of Australia: Canberra
- Cresswell, J., Underwood, C., Withers, G. & Adams, I. (2002) *Evaluation of the University of Canberra Programme for Advanced Literacy Development, Scaffolding Literacy Programme with Indigenous Children in School*. Report to the Department of Education, Science and Training.
- Department of Education, Science and Training.(2002). *National Report to Parliament on Indigenous Education and Training, 2001*. Commonwealth of Australia.
- Department of Health and Aged Care (2001). *Measuring Remoteness: Accessibility/Remoteness Index of Australia (ARIA) (revised edition)*. DH&AC Occasional Papers: New Series No. 14. Canberra: DH&AC
- Frigo, T. (1999). *Resources and Teaching Strategies to Support Aboriginal Children's Numeracy*. Sydney: New South Wales Board of Studies. [http://www.boardofstudies.nsw.edu.au/aboriginal_research]
- Howard, P. (1998a). *Contextual issues related to Aboriginal children's mathematical learning*. Paper presented at the Annual Conference of the Australian Association for Research in Education (AARE), at Adelaide, 30 November-3 December 1998.
- Masters, G. and Forster, M. (1997). *Mapping Literacy Achievement: Results of the 1996 National School English Literacy Survey*. Canberra: DEETYA.
- MCEETYA. (2000a). *National report on schooling in Australia: 1999*. Melbourne: Curriculum Corporation. [<http://www.curriculum.edu.au/mceetya/public/pub325.htm>]
- McRae, D., Ainsworth, G., Cumming, J., Hughes, P., Mackay, T., Price, K., Rowland, M., Warhurst, J., Woods, D. and Zbar, V. (2000). *What Works?: Explorations in Improving Outcomes for Indigenous Students*. Canberra: Australian Curriculum Studies Association. [http://www.acsa.edu.au/publications/whatworks_sections.htm]

- Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA). (2000b). *Report of MCEETYA Taskforce on Indigenous Education*. Carlton, Victoria: MCEETYA [<http://www.curriculum.edu.au/mctyapdf/reportm.pdf>]
- Perso, T. (2003). *Improving Aboriginal numeracy: A book for education systems, school administrators, teachers and teacher educators*. Perth, MASTEC: Mathematics, Science & Technology Education Centre, Edith Cowan University.
- QSR International Pty Ltd. (2000). *NVivo Qualitative Data Analysis Program (Version 1.3)*; Melbourne: QSR International Pty Ltd.
- Raban, B., Griffin, P., Coates, H. & Flear, M. (2002). Profiling Preschool Literacy: Evidence of Indigenous Children's Capabilities. *Australian Research in Early Childhood Education*, 9(1), 74-85.
- Rose, D., Gray, B., & Cowey, W. (1999). Scaffolding reading and writing for Indigenous children in school. In P. Wignell (ed.), *Double Power: English Literacy and Indigenous Education*. Melbourne: Language Australia.
- Rowe, K. J. & Rowe, K. S. (1999). Investigating the relationship between student' attentive-inattentive behaviours in the classroom and their literacy progress. *The International Journal of Educational Research*, 31(2), 1-137.
- Stephanou, A. (2000). Using the Rasch model to study large scale physics examinations in Australia. In M. Wilson & G. Engelhard. (Eds) *Objective Measurement: Theory and Practice* Stamford, CO: Ablex Publishing Corporation.
- Stephanou, A., Meiers, M. & Forster, M. (2000). Constructing scales for reporting growth in numeracy: the ACER longitudinal literacy and numeracy study. In, *Improving Numeracy Learning, Research Conference 2000: Proceedings*. Melbourne: ACER.
- Willmott, E. (1981). The culture of literacy. In B. Menary (ed.), *Aborigines and Schooling*. Adelaide: Adelaide College of Arts and Education.
- Zubrick, S., Silburn, S., Gurrin, L., Teoh, H., Shepherd, C., Carlton, J., & Lawrence, D. (1997). *Western Australian Child Health Survey: Education, Health & Competence*. Perth: Australian Bureau of Statistics & The TCW Telethon Institute for Child Health Research.