INDIGENOUS AND RURAL STUDENTS: DOUBLE WHAMMY OR GOLDEN OPPORTUNITY? EVIDENCE FROM SOUTH AUSTRALIA AND AROUND THE WORLD

Petra Lietz

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Dr Petra Lietz is Principal Research Fellow at ACER. Petra joined ACER in February 2009 from the position of Professor of Quantitative Research Methods at Jacobs University Bremen, Germany. She is Editor in Chief of the Australian Journal of Education *(AJE). The AJE was established in 1957 and is published by SAGE for ACER.*

Research methods and designs were also a focus at Central Queensland University in Rockhampton, where she was a Senior Lecturer in Research Methods in the Faculty of Business and Associate Dean Research from 1997 to 2000. Dr Lietz has also worked outside academia, as a consultant to the Organisation for Economic Co-operation and Development (OECD) and the International Association for the Evaluation of Educational Achievement (IEA). From 2000 to 2002, she was Assistant Project Director at International Survey Research (then ISR, now Towers-Watson) in London, a firm that conducts employee satisfaction surveys for globally as well as nationally operating companies.

Her research interests include survey research methodology and methodological issues in internationally comparative research, in which she has been involved since she started to work at the International Coordinating Centre for IEA's Second International Science Study and Reading Literacy Study at Hamburg University in 1988. Her publications range from contributions to professional journals on the nature of employee satisfaction to refereed journal articles of findings from multivariate and multilevel analyses with a focus on factors related to student achievement in various subject areas. In addition, Dr Lietz has contributed chapters on descriptive and inferential statistics in methods books for the social sciences.

I Gusti Ngurah Darmawan

The University of Adelaide, South Australia

Dr I Gusti Ngurah Darmawan is a Senior Lecturer, Associate Head (International) within the School of Education at the University of Adelaide.

His research interests are wide and varied. From a strong initial interest in Information and Communication Technology and Science Education, he has extended his field of inquiry in these areas to cross-national and comparative perspectives, and consequently has developed a strong interest in educational research methodology and measurement. He has been recently involved in the South Australian hub of the National Centre of Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia (SiMERR-SA) research project.

He has also been working with educationists from Cambodia, Philippines and Indonesia to provide support for their educational reforms through research, training and consultancies funded by either AusAID or other sources. He initiated and led successfully the fellowship program for 10 fellows from the Kingdom of Cambodia in educational assessment and evaluation, working closely with its Ministry of Education, Youth and Sport in 2009. He currently collaborates with leading academics and researchers from Malaysia, Thailand and Indonesia in a program designed to investigate ways to improve the literacy and numeracy performance of students in the Asia-Pacific Region using the large body of data collected by the International Association for the Evaluation of Educational Achievement (IEA) and the Programme for International Student Assessment (PISA) through their international assessment studies.

Carol Aldous

Flinders University, South Australia

Dr Carol Aldous is Project Director of the Literacy and Numeracy Project of the South Australian hub of the National Centre of Science, Information and Communication Technology, and Mathematics Education for Rural and Regional Australia, which undertook the analyses of changes over time and grades reported in this paper. She is a Senior Lecturer in the School of Education at Flinders University. She has a strong background in education, having held a range of leadership positions within the Education Department of South Australia. As a former systems leader, she has broad experience in curriculum matters. Among other things, she managed the Science Curriculum Focus Schools Projects, the 'Science Alive: a Festival of Science for Young Australians' and the Gender Equity Project for students and teachers of highest level mathematics and physics. She is committed to the development of high-quality teachers with a passion for science and mathematics learning and teaching. Recently, Dr Aldous was made Director of the Master of Teaching Program within the School of Education. Dr Aldous is also a member of the South Australian Institute for Educational Research (SAIER) executive committee.

Discussants

Lester-Irabinna Rigney

The University of Adelaide, South Australia

John Halsey

Flinders University, South Australia

Abstract

This session presents and discusses results of analyses aimed at providing insights from large-scale assessments in literacy, numeracy and science into the differences in student- and school-level factors related to the performance of Aboriginal students and students in rural and remote areas when compared with the performance of other students. Evidence examined in the analyses includes data from international testing programs, namely the Progress in International Reading Literacy (PIRLS: Year 4, reading performance), the Programme for International Student Assessment (PISA; 15-year-old students' mathematics and science performance) and longitudinal data in literacy and numeracy from three cohorts of students from Year 3 to Year 7 in South Australian government schools (SiMERR-SA). The analyses address questions such as: What factors are related to performance in literacy and numeracy? Is the picture for Aboriginal and rural students in Australia different from that for Indigenous and rural students in other countries? How does living in a rural and remote community relate to changes in student outcomes over time? What is the situation in rural and remote (South) Australia when compared with metropolitan Australia (Adelaide)?

Professor John Halsey and Professor Lester-Irabinna Rigney will discuss and comment on the results presented by Dr I Gusti Ngurah Darmawan, Dr Carol Aldous and Dr Petra Lietz. This will be followed by a Q&A format, moderated by Petra Lietz, in which the audience has the opportunity to ask questions of presenters and discussants.

This session will be held in cooperation with the South Australian Institute for Educational Research (SAIER). The Institutes for Educational Research were formed in the late 1920s as supports for and promotion of ACER and the Institute in SA is still very active (see www.saier.org.au).

The performance of Indigenous students relative to the performance of non-Indigenous students has been a focus not only in Australia but also in countries such as Canada, New Zealand and the USA (Bishop, Berryman, Wearmouth, Peter & Clapham, 2012; Clark, 2014; Demmert, 2001; Parker, Bodkin-Andrews, Marsh, Jerrim & Schoon, 2013). Likewise, performance of students in metropolitan and non-metropolitan areas is frequently a focus for policy makers and educators (Clarke & Wildy, 2011; Hanushek, Link & Woessmann, 2013; Sullivan, Perry & McConney, 2013).

These aspects are examined in two ways. First, performance differences are explored briefly using international evidence from PISA. Second, longitudinal data in literacy and numeracy from three cohorts of Grade 3 to Grade 7 students in South Australian government schools are analysed using multilevel path modelling to examine further how Indigenous status and school location are related to performance changes across grades and over time.

Performance differences from an international perspective

Initially, it was intended to compare differences in performance in PISA between Indigenous and non-Indigenous students in Australia, Canada, New Zealand and the USA. However, neither the USA nor Canada could be included in the analysis. In the USA, the reporting standards were not met for American Indian/Alaska Native and Native Hawaiian/Other Pacific Islanders (National Center for Education Statistics, 2013). In Canada, no question was administered in the PISA 2012 assessment to identify Indigenous students (P. Brochu, personal communication, 2014). Still, in

Table 1 Performance of Indigenous and non-Indigenous, Māori and non-Māori students across PISA cycles

Mathematics	Mean* 2003	SE	Mean 2012	SE	% below level 2 in 2012
Australia Indigenous	440	5.4	423	4.4	48
Australia non-Indigenous	526	2.1	510	1.6	18
Difference Indigenous–non-Indigenous	**–86**		**–86**		**30**
New Zealand Māori	477	6.6	452	6.7	38
New Zealand non-Māori	523	2.3	500	2.4	23
Difference Māori–non-Māori	**–46**		**–48**		**15**
Reading	Mean 2000	SE			
Australia Indigenous	448	5.8	434	4.3	37
Australia non-Indigenous	531	3.4	517	1.6	12
Difference Indigenous–non-Indigenous	**–83**		**–83**		**25**
New Zealand Māori	482	6.2	466	5.8	27
New Zealand non-Māori	529	2.7	512	2.4	16
Difference Māori–non-Māori	**–47**		**–46**		**11**
Science	Mean 2006	SE			
Australia Indigenous	441	7.8	526	1.8	35
Australia non-Indigenous	529	2.3	446	3.9	12
Difference Indigenous–non-Indigenous	**–88**		**80**		**23**
New Zealand Māori	480	7.2	469	6.9	25
New Zealand non-Māori	530	3.3	516	2.6	16
Difference Māori–non-Māori	**–50**		**–47**		**9**

Notes: *The 'initial' mean is taken from the year in which a domain was fully developed as a major domain for the first time in PISA.
SE= standard errror

addition to Australian data, information was available for Māori and non-Māori students in New Zealand.

Results in Table 1 show that Indigenous students perform well below non-Indigenous students in both Australia and New Zealand. Given that 33 PISA points in Australia and 39 PISA points across Organisation for Economic Co-operation and Development (OECD) countries represent about one year of schooling, results indicate that Australian Indigenous students are about two and a half years behind their non-Indigenous peers in all domains. Moreover, mean differences have remained the same over time in mathematics and reading, and decreased slightly in science. Also, Indigenous students are three times more likely to be in the lower performing band than non-Indigenous students in all domains.

In New Zealand, Māori students perform about one and half years lower than their non-Māori peers across all domains. In addition, Māori students are a bit more than one and a half times more likely to be in the lower performing bands.

Table 2 reports the average performance of 15-year-old students in mathematics, reading and science in PISA 2012 by school location for Australia, Canada, New Zealand and the USA.

In Australia, student performance in all three domains consistently and significantly increases with the size of the population base in which schools are located from village to large city. In Canada, differences in performance between students in schools in villages and small towns are not significant. However, students in schools in these locations do perform at a significantly lower level than students in schools in the highest performing locations, which are towns and cities in mathematics and science, and cities in reading. In New Zealand, similar to Australia, student performance in all three domains consistently and significantly increases from village to city. However, performance decreases again for students in schools in large cities in New Zealand. While the tendency for students in schools in villages to demonstrate the lowest performance regardless of the domain can also be observed in the

Table 2 Performance in PISA 2012 by school location

Mean mathematics performance	AUS mean	AUS SE	CAN mean	CAN SE	NZL mean	NZL SE	USA mean	USA SE
Village	468	5.57	508	4.79	458	6.13	471	13.18
Small town	478	4.78	503	3.66	483	7.88	481	10.14
Town	490	3.57	524	3.08	496	6.69	494	8.52
City	502	2.68	524	3.71	517	5.88	473	9.14
Large city	523	3.09	517	6.62	510	5.96	484	22.31
Mean reading performance	**AUS mean**	**AUS SE**	**CAN mean**	**CAN SE**	**NZL mean**	**NZL SE**	**USA mean**	**USA SE**
Village	480	6.79	505	5.21	466	10.44	480	17.20
Small town	479	5.24	510	4.26	490	7.29	491	11.09
Town	500	3.90	524	3.10	509	6.05	507	8.02
City	510	2.92	532	3.95	539	6.83	492	9.38
Large city	531	2.73	523	6.29	519	5.60	505	21.23
Mean science performance	**AUS mean**	**AUS SE**	**CAN mean**	**CAN SE**	**NZL mean**	**NZL SE**	**USA mean**	**USA SE**
Village	495	6.80	518	4.45	477	7.93	490	15.88
Small town	499	4.31	516	4.07	502	9.10	500	10.73
Town	513	4.29	529	3.05	515	6.80	510	9.44
City	521	2.99	532	3.28	539	5.98	490	8.43
Large city	535	3.07	521	6.68	517	5.80	491	20.70

Note: Results based on analysis of PISA 2012 international database; using the SPSS replicates module.

USA, the highest performance is recorded for towns, although many of the differences cannot be considered substantive due to the large standard errors associated with the estimate.

Performance differences from a South Australian perspective

In the South Australian hub of the Science, Information and Communication Technology and Mathematics Education for Rural and Regional Australia (SiMERR-SA) project, students in South Australian government schools were followed over four years of schooling to measure changes in literacy and numeracy performance. Achievement scales were constructed to enable comparisons over time and years of schooling or grade levels on a common scale. In addition, information was obtained from both the student and the school on factors that were hypothesised to be related to performance. The 90 per cent dataset was provided for secondary analyses by the Department of Education and Children's Services (DECD) in South Australia.

Achievement of non-metropolitan sub-groups on numeracy and literacy tests

Figure 1 records the profiles of performance on the numeracy and literacy tests for the metropolitan and non-metropolitan regions, as well as for four non-metropolitan subregions, namely large provincial, small provincial, remote and very remote, in the years from 2000 to 2006. Simple comparisons associated with the relative sizes of the differences are made. An effect size of 3.2 score points represents 1 year of learning in literacy while an effect size of 3.8 score points represents 1 year of learning in numeracy. The metropolitan group performs at a higher level in both numeracy and literacy that is equivalent to almost a semester of school learning. The very remote group performs about half a semester behind in literacy learning compared with the non-metropolitan group, but is not behind the non-metropolitan group in numeracy. Interestingly, no differences emerge in either numeracy or literacy performance between the other three non-metropolitan regional groups.

The numeracy and literacy tests are formed from three subtests that are calibrated on the same scale as the combined test. Consequently, it is possible to compare relative performance on each of the fields of numeracy

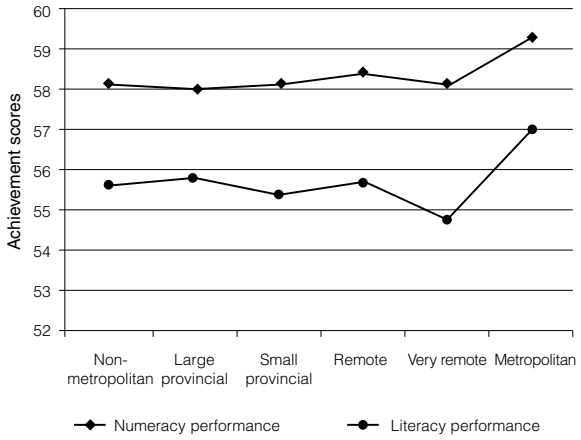


Figure 1 Profiles of achievement in numeracy and literacy for the non-metropolitan and metropolitan regions

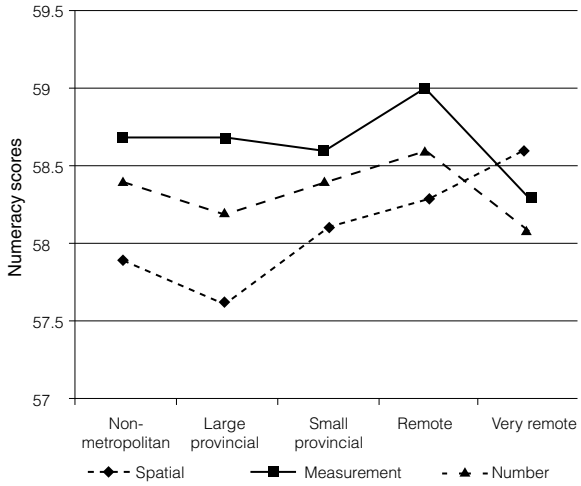


Figure 2 Performance profiles on numeracy sub-tests for the non-metropolitan region

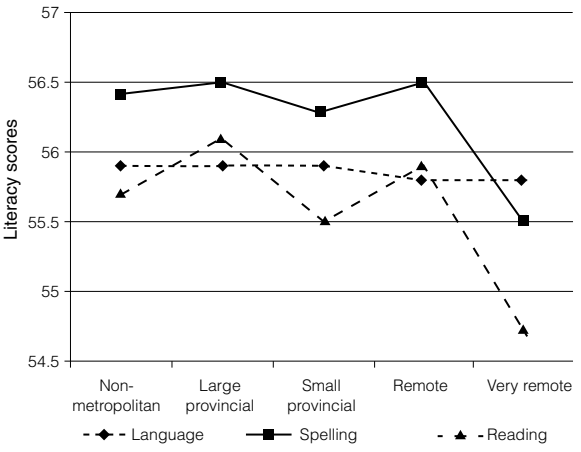


Figure 3 Profiles of achievement on literacy subtests for the non-metropolitan region

Table 3 Performance of students on numeracy and literacy tests in the non-metropolitan region and subregions

Rasch-scaled scores (Mean 50, SD 10)	Non-metro	Large provincial towns	Small provincial towns	Remote areas	Very remote areas
Numeracy					
Measurement	58.7	58.7	58.6	59.0	58.3
Space	57.9	57.6	58.1	58.3	58.6
Number	58.4	58.2	58.4	58.6	58.1
Literacy					
Reading	55.7	56.1	55.5	55.9	54.7
Spelling	56.4	56.5	56.3	56.5	55.5
Language	55.9	55.9	55.9	55.8	55.8
Number of students	10 281	3642	4836	1521	282

and literacy not only between groups but also between subtests. The subtests in numeracy comprise measurement, space and number, and the subtests in literacy comprise reading, spelling and language. Table 3 records the mean Rasch-scaled achievement scores on each of the subtests of numeracy and literacy for each non-metropolitan region. Figures 2 and 3 present the profiles of the achievement of these groups of students on the subtests on numeracy and literacy respectively.

Figure 2 clearly shows the low performance of students in large provincial towns on the spatial subtest and the high performance of students in remote areas on the measurement subtest. Figure 3 illustrates the uniformity of the language scores on the literacy tests across the subgroups and the spelling scores for all groups except the very remote group. The noticeably low scores of the very remote students on the reading subtest, together with the higher scores of students in large provincial towns on the reading subtest is noteworthy.

Information for teaching and learning in non-metropolitan schools can clearly be gained from test scores directly. However, the interrelationships between factors operating at the school and student levels and the test scores are complex, and require the use of analytical procedures that disentangle the student, school and regional effects.

Multilevel analysis of achievement test scores for the non-metropolitan subregions

Results of multilevel analyses of the effects on literacy and numeracy of school factors, between-student factors and within-student factors are given in Figures 4 and 5. The effects of specific factors are not necessarily direct but are frequently moderated by factors from inside and outside the school that influence not only performance levels but also rates of learning as students progress through primary schooling. At the school level, the proportion of

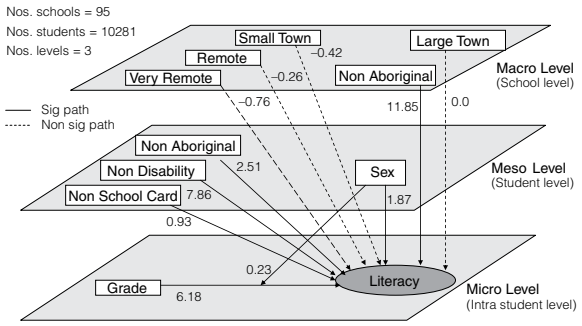


Figure 4 Path diagram of effects on literacy performance for non-metropolitan schools

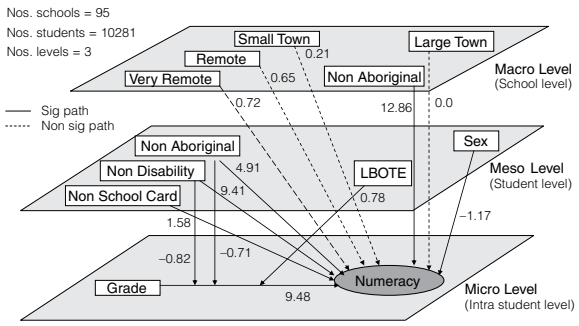


Figure 5 Path diagram of effects on numeracy performance for non-metropolitan schools

non-Aboriginal students in the school is found to be related to the performance levels in both literacy and numeracy. At the student level, girls learn at a faster rate than boys in literacy, while boys learn at a faster rate than girls in numeracy. In these figures, females are coded as one and males as zero; therefore a positive sign with respect to the variable 'sex' indicates females, while a negative sign indicates males.

Modelling for reciprocal relationship

While literacy and numeracy are separate areas of instruction in schools, evidence for a reciprocal relationship between the learning of literacy and numeracy is presented in Figure 6. These findings not only emphasise the importance of mastering the skills of literacy for the learning of numeracy during the years of primary schooling, but also indicate that the effects of the skills of numeracy on achievement in literacy cannot be ignored.

Table 4 presents the estimated reciprocal effects for the model in which the components of both literacy and numeracy are weighted to optimise the relationships between the components of reading, spelling and writing for literacy and measurement, space and number for numeracy and the combined scores.

Multilevel path modelling approach

Recent MPlus programs can undertake a path analysis where two further analytical strategies can be

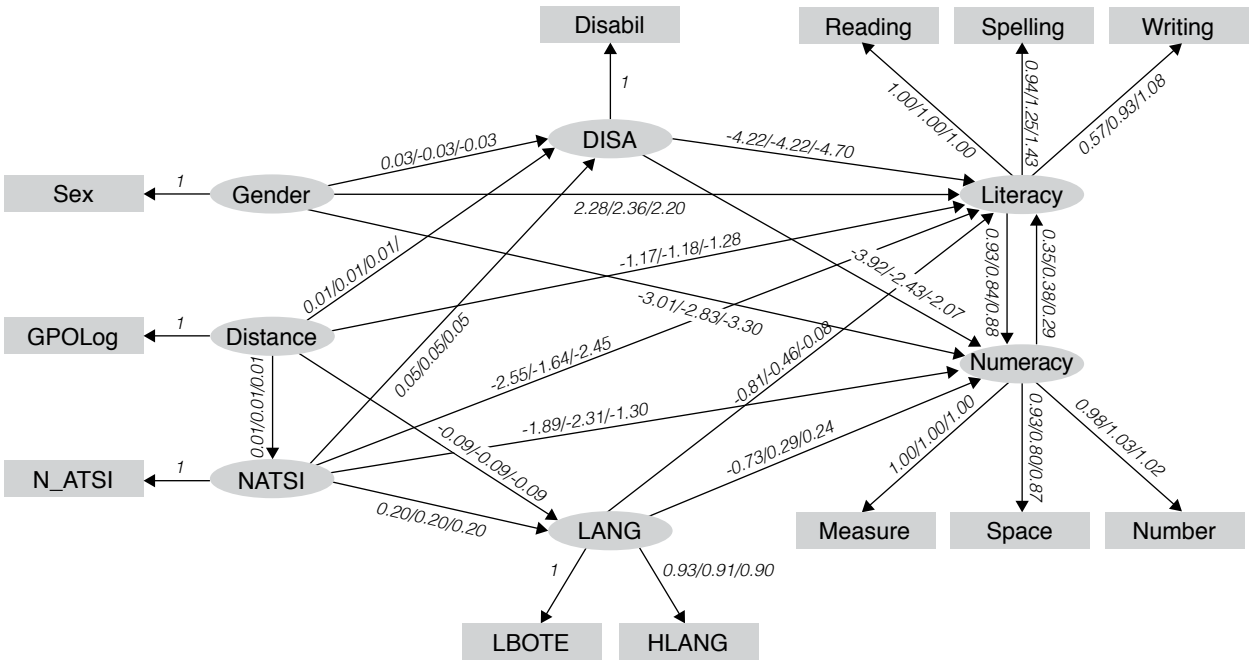


Figure 6 Path diagram for a model of the reciprocal relationships between literacy and numeracy, with metric coefficients recorded in order of year levels for Years 3, 5 and 7 analyses

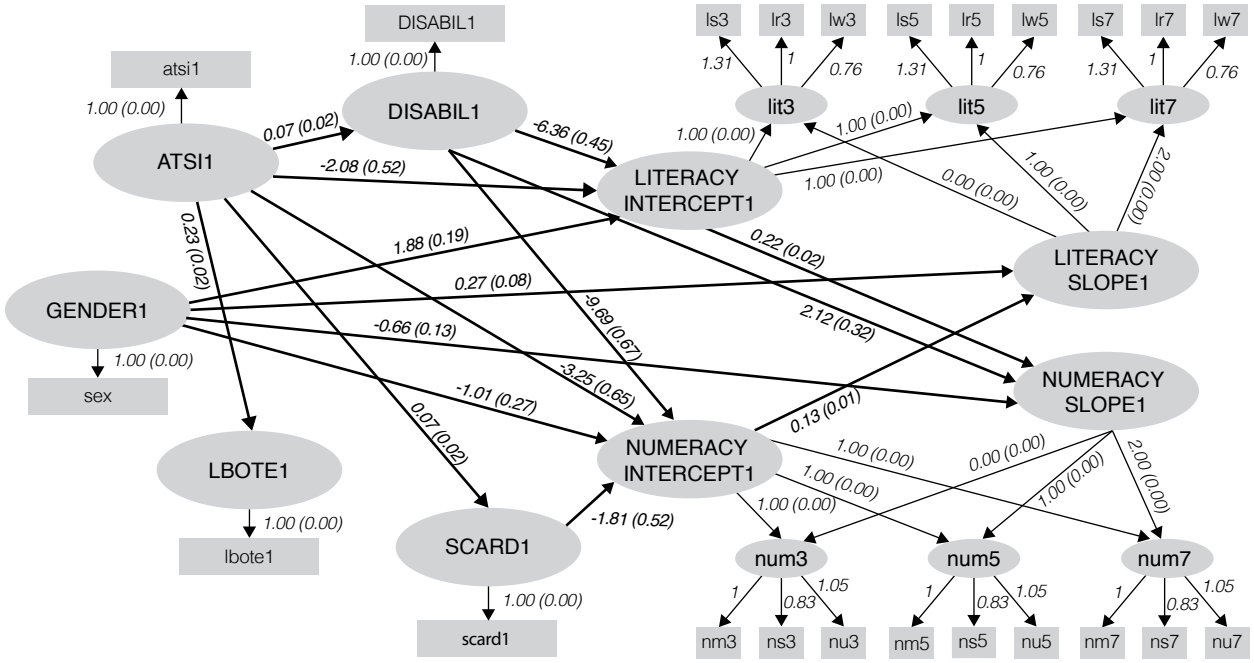
Table 4 Metric coefficients for reciprocal relationships of numeracy on literacy and literacy on numeracy, a complex path model regression analysis for Years 3, 5 and 7

Metric coefficients recorded	Regression or path coefficients		
	Year 3	Year 5	Year 7
Effects of numeracy on literacy	0.35	0.38	0.29
Effects of literacy on numeracy	0.83	0.84	0.88

employed, namely (a) for (i) between students within schools and (ii) between schools, as well as (b) for (i) initial achievement at the Year 3 level and (ii) gain in achievement across the four years from Year 3 to Year 7. These analyses consider the separated effects of characteristics of students and their homes at Year 3, as well as effects of the schools and their communities on performance gains during primary schooling. At the same time, the possibility of examining the effects of an intervention program and the magnitude of effects is explored. Below, the sample of South Australian non-metropolitan primary school students and schools is analysed to enable the estimation of the effects of the Country Areas Program (CAP) in the non-metropolitan region at the school level. Results for three models are presented.

Between-students path model for non-metropolitan primary schools

Model 1 is the between-student path model depicted in Figure 7. In Model 1, at the micro-level, three latent variables are formed for literacy performance from the test scores for spelling, reading and writing at Year 3, Year 5 and Year 7 for each student. From these three measures of literacy performance, two further latent



(Inner model paths are indicated by bold lining)
Estimated path coefficients and their standard errors are recorded for N = 2702 students

Figure 7 Model 1: Between-students within schools path model for South Australian non-metropolitan schools

Table 5 Student within school effects on literacy and numeracy intercepts and slopes

Significant metric coefficients recorded	Literacy		Numeracy	
	Intercept	Slope	Intercept	Slope
Aboriginal (ATSI1)	–2.08	-	–3.25	-
Disability (DISABIL1)	–6.36	-	–9.69	2.12
Language Background (LBOTE1)	-	-	-	-
School Card (SCARD1)	-	-	–1.81	-
Gender	1.88	0.27	–1.01	–0.66
Literacy intercept	-	-	-	0.22
Numeracy intercept	-	0.13	-	-

variables are constructed with appropriate loadings to provide scores for the literacy trajectory that involve the 'intercept' of the trajectory at the Year 3 level, referred to as the 'intercept' or 'initial standard' of performance and the 'slope' of the trajectory across Year 3 to Year 7, referred to as the 'gain' in literacy performance. Likewise, for the scores for measurement, spatial, and number obtained at Year 3, Year 5, and Year 7 for each student, three latent variables are formed for numeracy performance at Year 3, Year 5, and Year 7. From these three scores of numeracy performance, two further latent variables are formed for the 'numeracy intercept' at Year 3 or 'initial standard' of performance, and the numeracy 'slope' referred to as the 'gain' in numeracy performance.

At the meso level or student level of analysis, the effects of five explanatory variables are also estimated for their influence on literacy intercept, literacy slope, numeracy intercept and numeracy slope. In addition, the effects of literacy intercept on numeracy slope and numeracy intercept on literacy slope are also estimated. Table 5 records the metric path coefficient for the effects of the five variables on the intercepts and slopes for literacy and numeracy.

Of particular interest are the significant negative effects of Aboriginality on the literacy and numeracy intercepts of (–2.08) and (–3.25) respectively but not on the slope. This means that while initial literacy and numeracy performance of Aboriginal students is lower than that of non-Aboriginal students, the effects on the rate of gain for both groups are not significant.

Effects of an intervention program in non-metropolitan schools

One major issue to be addressed through the analyses concerns the possibility of estimating the effects of an intervention program on the operation of the primary schools in the non-metropolitan region. While an appropriate program directed at overcoming learning difficulties encountered by Indigenous students in South Australian primary schools had not been developed or introduced, a program to support schools in rural areas – the Country Areas Program (CAP) – had operated for approximately 25 years at the time of data collection.

Since this CAP operated at the school level and not specifically at the student level, the findings from the analyses of the combined student and school samples, referred to as 'total sample', suffer from serious limitations. However, the multilevel path modelling approach enabled the separation of levels of analysis, with the between-student level forming the meso level and the school level forming the macro level. This enabled a single analysis involving the macro and meso levels. Furthermore, the intercept or standard relationships could be separated from the slope or

Table 6 Between-school effects with and without Country Areas Program included in the analysis of Model 2 for direct and mediating relationships on literacy and numeracy

Metric coefficients recorded	Mediating variable		Literacy		Numeracy	
	ATSI2	STR2	Intercept	Slope	Intercept	Slope
Model 2b (with CAP included)						
Country Areas Program (CAP)	–0.04	–3.28	ns	ns	1.52	ns
ATSI2	•	ns	–16.73	ns	ns	ns
Student teacher ratio (STR2)	•	•	•	•	–0.13	ns
Literacy intercept	•	•	•	•	•	0.40
Numeracy intercept	•	•	•	0.18	•	ns
Model 2a (without CAP included)						
ATSI2	•	ns	–16.00	ns	ns	ns
Student teacher ratio (STR2)	•	•	•	•	–0.13	ns
Literacy intercept	•	•	•	•	•	0.41
Numeracy intercept	•	•	•	0.23	•	•

(ns) indicates a non-significant effect, (•) indicates no relationships hypothesised.

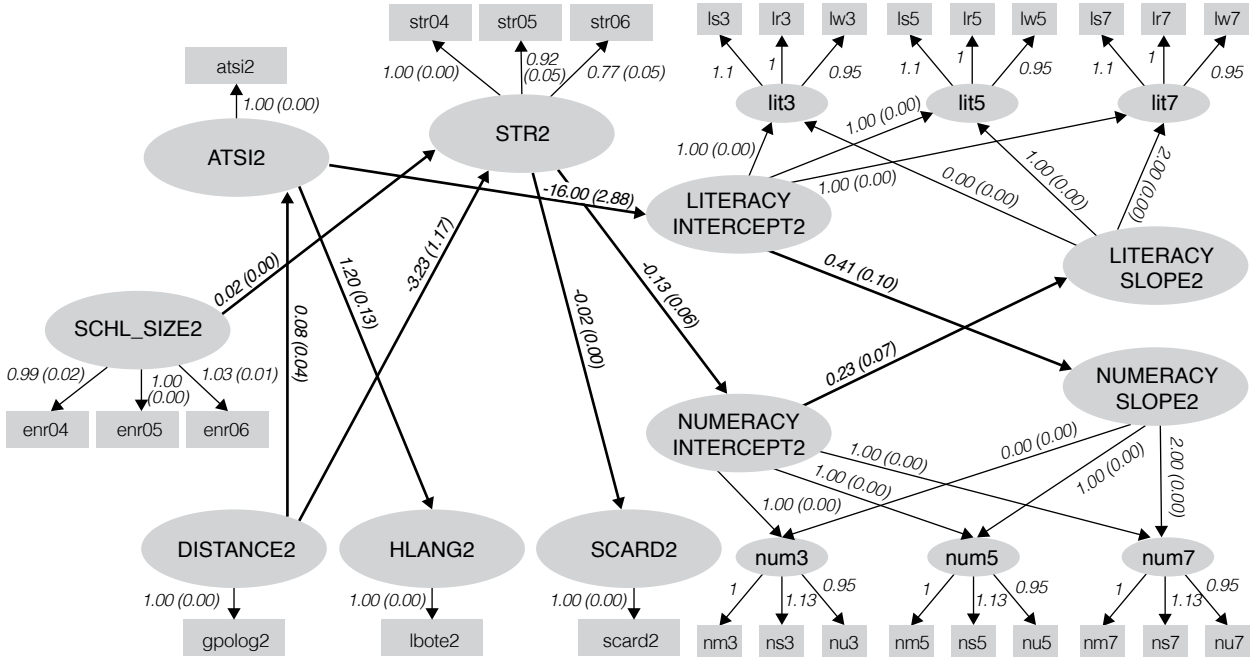


Figure 8 Model 2a: Between-schools path model without CAP for South Australian non-metropolitan primary schools

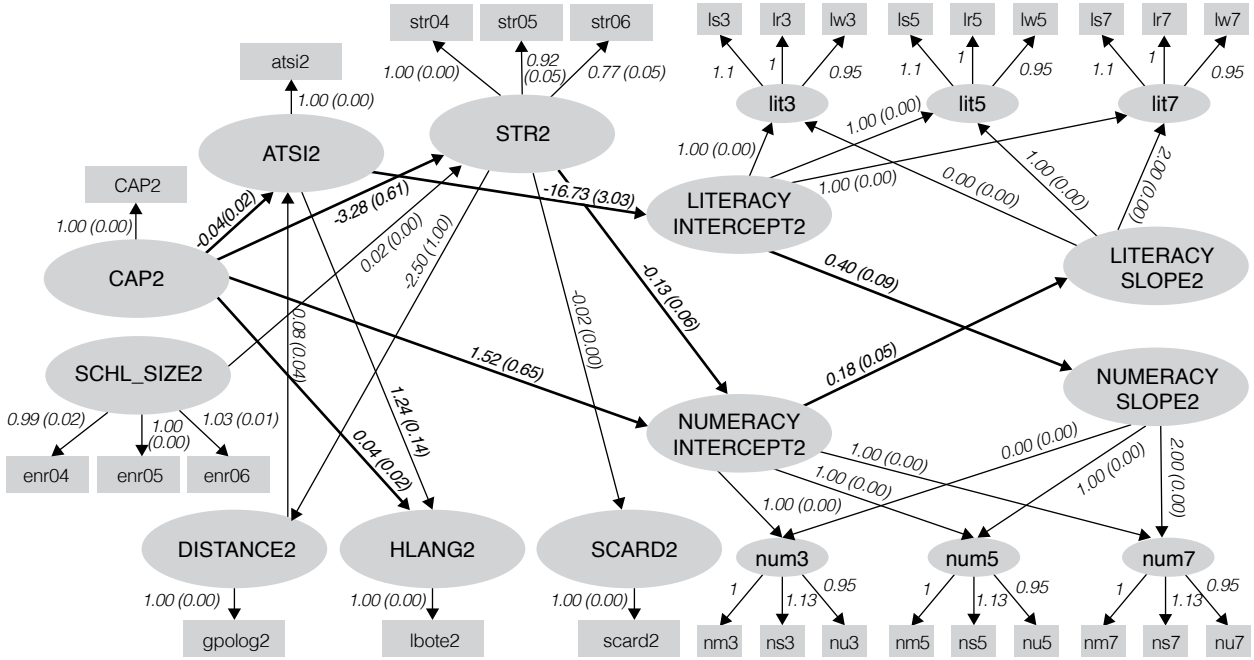


Figure 9 Model 2b: Between-schools path model with CAP for South Australian non-metropolitan primary schools

gain relationships at the micro level. This enabled the specification of Model 2 to examine further the effects of the CAP. However, two analyses at the macro level are required to estimate the path coefficients. In the first analysis, the variable CAP is excluded from the macro-level model, and in the second analysis the variable CAP is included in the macro-level model, with both analyses being undertaken with the model being exactly the same as the one for which results are recorded in Table 6 and Figure 8. Consequently,

the model of interest operating at the macro level or school level is presented as Model 2a (without the inclusion of the CAP variable) and Model 2b (with the inclusion of the CAP variable).

Table 6 records the path coefficients for the between-school analyses of Model 2 for the direct and mediating effects on literacy and numeracy intercepts and slopes with CAP (Model 2b) and without CAP (Model 2a). Importantly, in the two analyses reported in Table 6, exactly the same data are analysed for the primary schools in the non-metropolitan area of South Australia at the between-school or macro level. The results recorded for both analyses with Model 2b and Model 2a are derived from the same situation in which the CAP is operating. The differences between the two analyses merely include or exclude CAP from the analysis. Only in this way it is possible to examine whether the effects of CAP can be detected empirically.

For Model 2a (without CAP) the results of the analyses depicted in Figure 8 and presented in the lower panel of Table 6 show three direct relationships of interest.

1. ATSI2 has a direct effect (–16.00) on LITERACY INTERCEPT2.
2. LITERACY INTERCEPT2 has a direct effect (0.41) on NUMERACY SLOPE2.
3. STUDENT TEACHER RATIO (STR2) has a direct effect (–0.13) on NUMERACY INTERCEPT2.

This demonstrates a mediated effect of ATSI2 on NUMERACY SLOPE2 (–16.00 × 0.41) operating on NUMERACY SLOPE2 through LITERACY INTERCEPT2.

Two mediated influences of CAP onto LITERACY and NUMERACY INTERCEPTS emerge with mediated effects onto NUMERACY SLOPE2 and LITERACY SLOPE2 respectively.

1. CAP has a mediated or indirect effect (–0.04 × –16.73) on LITERACY INTERCEPT2 operating through ATSI2.
2. CAP has a mediated or indirect effect (–3.28 × –0.13) on NUMERACY INTERCEPT2 operating through STUDENT TEACHER RATIO (STR2).

Thus, CAP not only has recognisable effects on the component parts of Model 2 but these effects add considerably to an understanding of the learning in schools. Furthermore, the effects listed in Table 6 and depicted in Figure 9 indicate the substantial beneficial effects of the intervention.

Conclusion

The analyses reported here investigate the necessity for policies and programs to provide for the special needs of certain students with educational disadvantage and learning difficulties. Many issues arise with respect to where and why further developmental work is required not only in South Australia but across the whole of Australia and elsewhere.

Results also illustrate that while 'Indigenous' and 'non-Indigenous', as well as 'school location', are characteristics with categories required for reporting and analysis, these categories encompass many people in many unique locations and contexts.

Nevertheless, aspects of school culture and leadership proposed for high-performing schools in Indigenous contexts (Helme & Lamb, 2011, as cited in Dreise and Thomson, 2014, p. 4) resemble those that are repeatedly found to be associated with effective school environments in general (e.g. Bovell et al., 2013; Commonwealth Department of Education, Employment and Workplace Relations & Australian Council for Educational Research, 2012):

- a shared vision for the school community
- high expectations of success for both staff and students
- a learning environment that is responsive to individual needs
- a drive for continuous improvement
- involvement of the Indigenous community in planning and providing education.

Still, as the analyses have shown, the further schools and their students are away from larger centres, their facilities, services and resources, the more challenging it is for them to excel.

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