

INTRODUCTION

This book is the companion volume to *Science, ICT and Mathematics Education in Rural and Regional Australia: Report from the SiMERR National Survey*. It reports the findings from a series of focus group interviews conducted with teachers, parents/caregivers and students in each state and territory. A total of 112 interviews were held in 38 rural and remote schools, generating a rich body of data that complements the mainly quantitative nature of the first volume.

The interviews were conducted by research teams from each of the state and territory hubs of SiMERR Australia. Team members travelled widely in an attempt to tap into the diversity of rural schools. While following a common, semi-structured interview schedule, each research team also explored local issues and teased out similarities and differences in school situations. This approach allowed the hub teams a degree of flexibility in the structure and emphasis of their reports.

Rationale for conducting the focus group interviews

Concerns about the status of science, ICT and mathematics education in rural areas are detailed in Chapter Two of the first volume. In brief, recent research (e.g., Thomson, Cresswell & De Bortoli, 2004) has identified a significant gap between rural and metropolitan students in terms of their achievement levels in science and mathematics. Furthermore, numerous studies of rural education in general suggest there are critical staffing problems in the three subject areas, and point to disadvantages faced by country teachers in accessing professional development opportunities, adequate resources, and a range of learning experiences for their students. The extent of these disadvantages, and of the staffing problems, was explored in Phase One of the SiMERR National Survey.

The focus group interviews complement the first phase of the study in two ways. First, they provide a means of triangulating the mainly statistical data gathered via the questionnaires. According to Guba and Lincoln (1994), multi-method approaches such as this can provide a more sophisticated representation of what is happening in a given situation, thereby enhancing the credibility of the research. Triangulation does not necessarily seek to confirm or refute an impression gained from one set of data, but can be used to provide different perspectives, in which a divergence of perceptions is as valuable as convergence. Interviews have the potential to illuminate and add meaning to statistical patterns, and the raw voices of teachers, students and parent/caregivers bring an authenticity to research reports that statistical analyses often lack. This report is rich with such voices.

Second, Phase One of the study made no comparisons between states and territories, as such comparisons would be problematic given the wide variation in geographic and social contexts in different states/territories (e.g., Western Australia and Tasmania). Nevertheless, the extent of this variation also means that conclusions in the *Report from the SiMERR National Survey* need to be considered in the light of individual state and territory circumstances. The chapters of this volume provide insights into some of these circumstances.

Interview schedules

The interview questions were developed from open-response items included in the National Survey questionnaires. Research teams were free to determine the order and priority of questions and to include follow-up questions where appropriate. Interviews with teachers, students and parents/caregivers were conducted separately, with the exception of two situations in which interviewees felt more comfortable in combined groups. The core interview questions for each group are detailed below.

Questions for Teachers

- a) What are your reasons for teaching in a rural/regional school?
- b) What do you see as the strengths of your school in helping students achieve their potential in science, ICT and mathematics?
- c) What do you see as obstacles to students achieving their potential in science, ICT and mathematics?
- d) Do you have any examples of successful initiatives or programs?
- e) What are your views on attracting and retaining qualified science, ICT and mathematics teachers for rural schools?
- f) What recommendations would you make to education authorities to improve student outcomes in these subject areas in rural schools?

Questions for Parents/caregivers

- a) What are your reasons for living in a rural and regional area, and for your choice of school?
- b) What are your educational aspirations for your children?
- c) What are the strengths of your children's school in helping them achieve their potential in science, ICT and mathematics?
- d) What do you see as obstacles to students achieving their potential in science, ICT and mathematics in rural/regional schools?
- e) Do you know of any successful initiatives or programs?
- f) What local community factors affect student outcomes in science, mathematics and ICT education?
- g) What recommendations would you make to education authorities to improve student outcomes in these subject areas in rural schools?

Questions for students

- a) What are the advantages of living and schooling in this area?
- b) What are the disadvantages of living and schooling in this area?
- c) What would you like to do when you leave school? Do you intend to stay here or move?
- d) What do you think of mathematics (positive and negative)? What are you doing in mathematics?
- e) What do you think of science (positive and negative)? What are you doing in science?
- f) What do you think of ICT classes (positive and negative)? What are you doing in ICT? (only where appropriate)
- g) Tell me about your experiences of using computers in this school (positive and negative).

Clearly the data generated by these questions were based upon individual or group perceptions. Nevertheless, the teachers' experiences are grounded in day-to-day situations and provide credible perspectives on situations and activities at the 'chalk-face'. Likewise, the observations of secondary students have been found to be reliable (Levy, Wubbels, Brekelmans & Morganfield, 1997) and those of students in general provide the reader with a means of triangulating data to gain an overall impression. Parents/caregivers, as both primary educators and community members, are in a position to provide multiple perspectives on their children's education and on their schools.

School locations

In accordance with our obligations to participants, the descriptions and locations of schools throughout the chapters have been kept deliberately vague, and the names of schools and individuals replaced with pseudonyms. The MCEETYA Schools Geographic Location Classification (MSGLC) categories of schools are provided throughout the report to give an indication of levels of remoteness/accessibility (Jones, 2004). The MSGLC categories are described in Table 1.

Table 1. Categories of the MCEETYA Schools Geographic Location Classification (MSGLC) used in the report.

MSGLC Category	Code	Sub-category	Criteria	Examples
Metropolitan Area	1.1	State Capital City regions (except Darwin)	State capitals (except Hobart, Darwin)	Sydney, Melbourne, Brisbane, Adelaide, Perth, Canberra-Queanbeyan, Cairns, Gold Coast-Tweed, Geelong, Hobart, Newcastle, Townsville, Wollongong
	1.2	Major urban Statistical Districts	Pop. \geq 100 000	
Provincial City	2.1.1	Provincial City Statistical Districts (+ Darwin)	Pop. 50 000 – 99 999	Ballarat, Bathurst-Orange, Burnie-Devonport, Bundaberg, Darwin, Launceston, Portland, Bunbury
	2.1.2	Provincial City Statistical Districts	Pop. 25 000 – 49 999	
Provincial Area	2.2.1	Inner provincial areas	Pop. < 25 000, CD ARIA ^a Plus score \leq 2.4	Armidale, Busselton, Mt. Gambier, Gympie Dimboola, Huonville
	2.2.2	Outer provincial areas	CD ARIA Plus score > 2.4 and \leq 5.92	
Remote Area	3.1	Remote areas	CD ARIA Plus score > 5.92 and \leq 10.53	Port Headland, Cowell, Lightning Ridge, Mataranka, Cloncurry, Cape Barren Island
	3.2	Very Remote areas	CD ARIA Plus score > 10.53	

^a Accessibility and Remoteness Index of Australia used by the Australian Bureau of Statistics.

Overview of the report

The following chapters report findings from each of the SiMERR Australia hubs. Chapter Two brings us the perspectives of teachers, families and students in rural West Australian communities. The SiMERR WA team, Sandra Frid, Len Sparrow, Sue Trinidad, David Treagust, and Kirsteen McCrory, from Curtin University of Technology, covered a lot of territory, from the remote north coast, to a small inland

mining community, to a regional centre in the southwest of the state. Yet they note that as they travelled from Perth in various directions they found ‘much diversity and richness in the social, cultural, economic and physical environments’.

They also found complexity, particularly in looking at the interplay of characteristics affecting student outcomes in science, ICT and mathematics. They found student transience ‘integrally linked’ to curricula; living environments to teacher retention; and professional isolation to a shared sense of community in adversity. With three quarters of the WA population living in Perth, rural WA is for most teachers, ‘somewhere different to go’.

South Australia also has a very concentrated population, and the SiMERR SA team of Carol Aldous, Julie Clark (Flinders University of South Australia), Alan Barnes and Bruce White (University of South Australia) also clocked up some kilometres. Their study schools were in coastal fishing towns and farming communities in Provincial and Remote Areas. The team found a significant need to ‘close the gaps’ between what is available in Adelaide and what can be accessed by teachers in the study schools. The team also concluded that school structures and practices in some areas of South Australia ‘need to be re-thought and re-constructed to take account of the reality of the lives of many Indigenous students’.

The Victorian team of Russell Tytler and Judy Mousley (Deakin University), Steve Tobias (LaTrobe University), Agnes MacMillan (Royal Melbourne Institute of Technology) and Genée Marks (University of Ballarat) ‘explored the boundaries’ – geographical, curricular and digital, negotiated by teachers, students and families in six rural and regional schools. The team also interviewed a group of Victorian Regional Project Officers to gain a further perspective. Like their counterparts in Western Australia, the team found a complex interactivity between school characteristics such as size, location and community profile, and issues like staff retention, student learning opportunities and teacher professional development.

Two researchers from SiMERR Tasmania, Kim Beswick and Natalie Brown (University of Tasmania), made an effort to choose four schools as distant as possible from the major centres of Hobart and Launceston. They found a strong sense of community and collegiality, and in contrast to some hub reports, satisfaction with the availability of material resources. On the other hand, the team found that teachers were commonly required to teach outside their subject areas, and were concerned about the effects of this arrangement on their students’ learning.

When Australians think of the Australian Capital Territory, they generally think of Canberra. This can be an irritation to ACT teachers in rural schools who feel that if they ‘don’t shout loudly, they might be ignored’. The SiMERR ACT team of Catherine McLoughlin, Sue Wilson, Jo Brady and Steve Arnold (Australian Catholic University) went to two schools and found much to shout about. On the other hand, they also found concerns at one school that parents regarded it as an ‘incubator’, sending older primary children to larger city schools for a more ‘academic’ finish. The unique situation of the second school has generated a number of challenges for staff and the local community.

Howard Smith, Peter Merrotsy and David Paterson (University of New England), spent a couple of days in two communities in the far north of New South Wales, while the other members of SiMERR NSW, Karoline Afamasaga-Fuatai and Terry Lyons (University of New England), headed south and then west. Interviews from the two northern schools highlighted the effects of sudden changes in local industries on small rural communities, and the implications for teachers and students. In the central west, teachers were concerned about a 'brain drain' to city boarding schools, and about how to attract relief staff so they could access professional development opportunities.

Queensland is possibly the most environmentally and culturally diverse state in the country. The SiMERR Queensland team of David Lake, Max Lenoy, Juanita Sellwood, Rhonda Faragher and Louise Archer (James Cook University) sampled this diversity, visiting nine schools from the Torres Strait to the central west, and from the east coast to the rainforests of the far north. The team commented that the schools often had less in common with each other than they did with city schools. This diversity extended to the strengths and obstacles nominated by focus groups, and the team has done well to sift through the huge amount of data and identify the significant findings.

The team from the Northern Territory, Ruth Wallace, Lalitha Nair and Greg Shaw (Charles Darwin University), and Susan Barton-Johnson (NT Department of Employment, Education and Training) visited five schools. They found dynamic communities incorporating the diversity of local languages, knowledge, skills and experiences into the classroom and curriculum. They also identified transience of students, families and teachers as one of the greatest challenges to conventional education models. In a section on Indigenous education, the authors report on the importance of family, community and school links, and outline the opportunities and challenges for teachers living in Indigenous communities and teaching science, ICT and mathematics to students for whom English is a second or third language.

The final chapter of this report attempts to draw together some of the key themes identified by these studies. The very difficulty of this endeavour underscores the huge diversity of issues, approaches and contexts found in different geographical areas and educational jurisdictions.

REFERENCES

- Alloway, N., Gilbert, P., Gilbert, R., & Muspratt, S. (2004). *Factors impacting on student aspirations and expectations in regional Australia*. Canberra: Department of Education, science and Training.
- Guba, E. & Lincoln, Y. (1994). Competing paradigms in qualitative research. In N. Denzin & Y. Lincoln (eds). *Handbook of Qualitative Research*, London: Sage, pp. 105-117.
- Jones, R. (2004). Geolocation Questions and Coding Index. A technical report submitted to the MCEETYA Performance Measurement and Reporting Taskforce. Retrieved July 2005 from www.mceetya.edu.au/mceetya/default.asp?id=11968

Levy, J., Wubbels, T., Brekelmans, M. & Morganfield, B. (1997). Language and cultural factors in students' perceptions of teacher communication style. *International Journal of Intercultural Relations*, 21(1): 29-55.

Thomson, S., Cresswell, J., & De Bortoli, L. (2004). *Facing the future: A focus on mathematical literacy among Australian 15-year-old students in PISA*. Camberwell, VIC: ACER.