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The shortage of health professionals in rural and remote Australia:
Creating pathways between students living in rural and remote Australia
and health professional careers

Thesis submitted by
Susan M Gorton, MBBS FRACP MPHTM BA
in November, 2012

for the degree of Doctor of Philosophy
in the School of Education
James Cook University

Statement of contribution of others

The research reported in this thesis was conducted under the supervision of Associate Professor Melissa Vick and Professor Nola Alloway (and initially Professor Val Klenowski until her transfer to a different university, when she was replaced by Melissa Vick).

Rosemary Barry proofread the thesis.

James Cook University provided stipend support averaging \$10,698 per annum for four years (2007, 2008, 2009 and 2010), and a completion scholarship of \$2000 in 2011. The Royal Australasian College of Physicians' Research and Education Foundation granted a one-off payment of \$20,000 for stipend support, and \$10,000 for approved research-related expenses. This research was also supported by the Queensland Government's Growing the Smart State PhD program, which made available up to \$15,000 for approved project expenses.

I applied for, and received, approvals from the Department of Education, the James Cook University Ethics Committee and the two schools of distance education for this research to be undertaken. In addition, I obtained advice and approval from an Indigenous adviser to ensure that the project was culturally appropriate for Indigenous participants. Finally, I applied for and received approval to work with children under the *Commission for Children and Young People and Child Guardian Act 2000 (Qld)*.

In the thesis I make brief reference to *Jackaroo Jack*, a humorous play I wrote prior to commencing my PhD. *Jackaroo Jack* informs school students about the health professions. This play was subsequently published and included colourful illustrations created by Heather Chandler (Moore). I have received consent from Heather to reference this book.

Every reasonable effort has been made to gain permission from and acknowledge the owners of copyright material. I would be pleased to hear from any copyright owner who has been omitted or incorrectly acknowledged.

Declaration on ethics

The research presented and reported in this thesis was conducted within the guidelines for research ethics outlined in the *National statement on ethics conduct in research involving humans* (1999), the joint NHMRC/AVCC *Statement and guidelines on research practice* (1997), the James Cook University *Policy on experimentation ethics, standard practices and guidelines* (2001), and the James Cook University *Statement and guidelines on research practice* (2001). The proposed research methodology received clearance from the James Cook University Experimentation Ethics Review Committee (pilot study approval number H2670, main study approval number H2899).

Signature **Date**

Acknowledgements

I acknowledge with gratitude the thoughtful support and time given to this project by the two schools of distance education (Schools of the Air)—their teachers, parents, governesses and students. I also extend a sincere thankyou to the guest speakers who not only voluntarily gave their time, but also shared their wisdom and expertise with enthusiasm. To the members of the Uniting Church who performed the puppet show, I can only say: ‘You did a great job’.

Next I wish to thank my supervisors, Melissa Vick and Nola Alloway (and Val Klenowski, who was there at the beginning). Each provided their knowledge and guidance in different ways to see this thesis come to fruition. While I will miss our telephone meetings, I may not miss the 16-hour train trip (each way) for a face-to-face meeting.

I am grateful for the support provided by James Cook University, the Royal Australasian College of Physicians and the Queensland Government Growing the Smart State PhD Program as detailed in the *Statement of contribution of others*.

I must also thank my family. I lived remotely throughout this thesis, so it was my family who carried the biggest burden. This project ‘moved in’ like another family member. It occupied a whole room, and on some days also spilled over onto our long dining-room table. So I am grateful to my husband and our children for sharing our home and me with this project. Research is a giving but at the same time a selfish journey. Twelve months before I finished this thesis one of our children said: ‘I can’t remember a time when Mum wasn’t doing her project’.

I thank my older brother for being the first, and possibly the only, person to voluntarily offer to read this thesis, and for suggesting that next time I should try for world peace.

Last, but certainly not least, I wish to thank my mother for accommodating me during my trips to the university. You are still the wonderful host you always were when dad was alive.

Abstract

Rural and remote Australia suffers a severe, chronic shortage of a diverse range of health professionals. This is of major concern, because the people living in rural and remote Australia have worse health in several health outcome areas than their metropolitan peers. Australian and overseas studies have reported that health professionals who grew up in a rural or remote area are more likely than those from urban environments to return to work in a rural area after graduation. Career development theories indicate that children begin to shape ideas about careers in early childhood, and emphasise the importance of career exposure, including occupational role models, in shaping career choice. However, the severe chronic shortage of health professionals in rural and remote Australia means there is also a severe chronic shortage of health professional role models to which children in these areas can aspire. According to career development theories, career education should start long before high school if it is to make up for the absence of visible occupational role models. Any health career information in rural and remote Australia has focused on mid to late high school students. Career information provided to mid to late high school students is also too late for many students and their families to overcome the educational, cultural, social, family and financial barriers between them and participation in tertiary education for a health professional career at a distant university.

This project explored the health professional careers with a small number of predominantly primary students living in rural and remote Australia and studying by distance education, as well as their teachers, parents and governesses. Issues around the knowledge, perceptions and aspirations of students in relation to these careers, before and after health professional career education, were central to this research. The aims were to contribute to long-term solutions to the severe health professional shortage in rural and remote areas, and to widen the career choices of these students. No previous documented research in Australia had explored the health professional careers with primary students or with distance education students living remotely.

This project drew broadly on an action research framework, fundamental to which was a suite of activities aimed at informing the students about health professional careers. The research component involved initial qualitative interviews with parent, teacher, governess and student volunteers from two schools of distance education. The action component occurred over one school year and involved only one school, which serviced an area greater than 500,000 square kilometres. The action component was negotiated with the school community, and explored a diverse range of health careers. Follow-up

interviews with volunteers from this school occurred at the end of the year. Observations, informal communications and curriculum review completed the data collection.

These students had little opportunity to learn about professional careers, including the health professional careers, either in their daily lives or from the school. In contrast, they had rich opportunities to learn about working on the land. With few exceptions, students on initial interview showed very limited knowledge and few positive perceptions of, or aspirations towards, health professional careers. This contrasted with their knowledge, perceptions and aspirations in relation to these careers on follow-up by year's end.

Interviews with parents, teachers and governesses unveiled factors contributing to the initial limited knowledge, perceptions and aspirations of these students in relation to health professional careers which suggested a recursive nature to the health professional shortage. This generation's students may have greater difficulty imagining themselves as health professionals than previous generations. These students, in general, have far less opportunity to become health professionals than to work on the land in the beef cattle industry. They also have far less opportunity to participate in tertiary education than many students living in university cities.

This study explored how health professional career information can be disseminated to rural and remote students—in this case, students living in highly inaccessible areas, and serviced by distance education—as part of their education. The study also reports on participants' overall positive response to the program to which they were exposed. The data tentatively suggests that programs to address the shortage of health professionals in rural and remote Australia should include carefully planned integration of health professional career information in the school curriculum from an early age. The data also recognises the complexity of the shortage of health professionals in rural and remote Australia reported in previous studies. Finally, this research highlights the self-perpetuating nature of the shortage of health professionals in rural and remote Australia, and the need for wide, sweeping changes to achieve a long-term stable health workforce in these areas.

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Chapter 1: Introduction

This thesis addresses the problem, well documented in policy and scholarly literature, of the severe, chronic shortage of a diverse range of health professionals in rural and remote Australia (Australian Institute of Health and Welfare, 1998, 2008a, 2011a; Cooke, 1968; National Health Workforce Taskforce, 2009b; Productivity Commission Canberra, Jan 2006). Ongoing research and action are urgently required to find sustainable solutions, because people living in these areas have worse health outcomes according to several measures than their metropolitan peers (AIHW, 2006, 2008a(Australian Institute of Health and Welfare, 2011d). One potential strategy, identified in this literature involves recruiting health professionals from Australian rural and remote communities themselves (Henry, 2009; Laven, 2003; McGrail, 2011; Murray, 2006; Strasser, 1992). This thesis addresses the possible role of education in such a strategy. Specifically, it explores issues associated with the knowledge, perceptions and aspirations of distance-education school students living in rural and remote Australia in relation to the health professional careers, the knowledge and perceptions of their parents and teachers about these careers, and their aspirations for the students and how these might be shaped by education.

Problem statement

Many strategies have been implemented to address the shortage of health professionals in rural and remote Australia. Despite these efforts, in 2010 the shortage was said to have reached a crisis over the previous decade (McGrail, Humphreys, Scott, Joyce, & Kalb, 2010). In 2012 the Rural Health Standing Committee of the Australian Health Ministers' Advisory Council reported that 'workforce supply has reached a critical level in many rural and remote communities' ((Australian Health Ministers' Advisory Council's Rural Health Standing Committee, 2012, p. 39), while the relatively poor health of people living in these areas continues to be an issue (Australian Institute of Health and Welfare, 2008a). In addition, some of the strategies used to address the shortage have led to new problems. For example, the extensive use of short-term locum staff (Wakerman, Curry, & McEldowney, 2012) causes frequent interruptions to the continuity of patient care; the complexity of interchanges between patients and health professionals means that some information is lost between members of a peripatetic health workforce.

Two main bodies of research underpin this thesis. First are studies that explore the importance of recruiting health professionals from rural areas. For many years Australian and overseas studies have reported that health professionals who grew up in a rural area are more likely than colleagues raised in the city to return to work in a rural area after

graduation ((Henry, Edwards, & Crotty, 2009); Hoyal, 1994; Hughes et al., 2005;(Humphreys, Prideaux, Beilby, & Glasgow, 2009; Laven & Wilkinson, 2003; McGrail, Humphreys, & Joyce, 2011; National Rural Health Association, 2005a); (Rogers, Searle, & Creed, 2010)Strasser, 1992; Wilkinson et al., 2000). This suggests that school students living in rural and remote areas offer the greatest hope for a stable health professional workforce in these areas for the future. However, the severe shortage of health professionals in rural and remote Australia means that very few health professional role models are available to motivate these students to consider careers in health. Furthermore, students from rural and remote Australia have been and continue to be under-represented in tertiary education, including most health professional courses (Alston & Kent, 2003; Bradley, Noonan, Nugent, & Scales, 2008; Human Rights and Equal Opportunity Commission, 2000b). Even more worrying, in the five years to 2007 tertiary education access, participation and success rates for people from regional and remote parts of Australia worsened (Bradley et al., 2008). Furthermore, while the total number of domestic students enrolled in tertiary education rose by 29 per cent from 2001 to 2011, the number of students from remote areas fell by 7 per cent (Department of Industry, Innovation, Science, Research and Tertiary Education, 2011). This means that few students from rural and remote Australia go on to become health professionals.

Second, there is a growing body of literature, including two major reviews of research on career development in childhood, which supports the conceptualisation of childhood as an integral part of an individual's life-long career development (Gottfredson, 1981, 2002, 2004; Hartung, Porfeli, & Vondracek, 2005; Mary McMahon & Rixon, 2007; Watson & McMahon, 2005; Watson, McMahon, Foxcroft, & Els, 2010). This research also indicates that the more restricted students' exposure is to careers, the more restricted will be the pool of career options from which they can choose. However, limited career education is provided to Australian students before the secondary school years (Marks, Fleming, Long, & McMillan, 2000; Watson & McMahon, 2005), despite the strength of the arguments justifying early career education (Australian Council for Educational Research, 2010; Gottfredson, 1981, 2002a, 2004; Hartung et al., 2005; S. Johnston, 1994; M McMahon, Carrol, & Gillies, 2001a; Mary McMahon & Rixon, 2007; Schulthesiss, Palma, & Manzi, 2005; Watson & McMahon, 2005). It is relevant to this thesis that current health career education aiming to recruit students from rural and remote Australia appears to be mainly directed at middle and late high school students (Alexander & Fraser, 2001; Durey, McNamara & Larson, 2003; Fraser, Alexander, Simpkins & Temperley, 2003; Heaney, 1998; Hindmarsh, 2006; National Rural Health Students' Network, 2012b). Career education starting in the mid or late high school years

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is too late to optimally influence occupational aspirations, academic motivation and subject selection for most students (ACER, 2010; Hartung et al., 2005; Heaney, 1998; Johnston, 1994; Quaglia, 1996; Watson & McMahon, 2005). It may also be too late for students and their families living in rural and remote areas to prepare for the additional financial, cultural, emotional, social and family costs of attending university hundreds of kilometres away, compared with costs for students and families living in university cities (Alloway et al., 2004; Cripps, 2011; Dunbabin & Levitt, 2003; Durey et al., 2003).

In contrast, the United Kingdom and the United States have already initiated programs to encourage exploration of health careers from school entry through to the final year of schooling in order to address shortages of under-represented groups, including rural students, in health career courses (Hilton & Lewis, 2004; NRHA, 2006).

Furthermore, although there is widespread community and political interest in the shortage of health professionals in rural and remote Australia, there appears to be no parallel in available research. For instance, an internet search of the A+ Education database from 2000 to 2009 conducted on 19 November 2009 with the search terms 'health', 'medical', 'career' and 'education', independently and in combinations, searching all fields (e.g. title, abstract, whole text) failed to identify *any* articles on health professional career education for primary students in Australia, let alone in rural Australia. When this search was repeated in 2012 the findings were the same.

The project

This project explored facilitators and inhibitors in pathways between (predominantly primary) school students living in rural and remote Australia and studying by distance education, and health professional careers. The broad aims of the project were:

- to provide these students with information about health professional careers, so that when they make a career choice they have some information to help them decide whether such a career matches their interests and needs
- to contribute, in a small way, to building sustainable solutions to improve the shortage of health professionals in rural and remote Australia.

Methodology

Study population. The study involved two government schools of distance education—Schools of the Air—whose student populations were comprised almost entirely of students living remotely, rather than students being home-schooled. Most of the students and their families lived on remote grazing properties, mainly beef cattle stations.

These student populations were chosen for five reasons.

1. It was considered likely that the students would have a bond with rural and remote areas, given a childhood in the bush, parents devoted to the lifestyle and, frequently, a long historical family connection with rural Australia. (It is general knowledge that many people who live on rural properties would never consider living permanently in the city.)
2. In Queensland, Health Careers in the Bush, an alliance comprising representatives from the health and education sectors, and from public and private organisations (Health Careers in the Bush Alliance, 2009) runs workshops for secondary students from regional, rural and remote areas which are information and recruitment drives for the health professional careers (Hindmarsh, 2006). At the time this project started these workshops had been running for over ten years, and *no* distance education student had ever attended (N. Hindmarsh, project officer, Health Careers in the Bush program, personal communication, 2006).¹
3. These students have reasonably homogenous daily lives, most living on cattle stations in outback Australia.
4. Extensive research indicates that parents and teachers influence students' career choices (Alloway et al., 2004; Hartung et al., 2005; Khasawneh, 2010; McMahan et al., 2001; McMahan & Rixon, 2007; Vondracek, 2001; Watson & McMahan, 2005). Career education at the primary level may be an ideal time to involve these parents. Remote students have a close association with their parents during their primary years, when they are educated at home, often being taught by their mother. In contrast, the parents have relatively little direct involvement in their children's secondary education; most students relocate to a distant secondary school hundreds of kilometers from home, often as boarders.

Further, most health careers require tertiary education. Parental support at this point seems even more crucial for students living in rural and remote Australia than for city students, because of the greater costs involved in attending university. Career information provided to these students during the primary years would also be given to parents, who would thus be likely to grow in their own knowledge of tertiary education and careers and therefore be better able to offer informed support for their offspring.

2 I discuss this further in the next chapter, including follow-up of the program's database in 2012.

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5. These students, their parents and their teachers have not previously informed the literature on potential solutions to the severe shortage of health professionals in rural and remote Australia.

Project design. The design of the project was drawn broadly from an action research framework (Burns, 2000; Kemmis & McTaggart, 1988). Thus the project had both research and action components which should be conceptualised as part of the action research spiral. These components are separated in this thesis to assist with clarity and because the pilot study was only involved with the research component while the main school was involved in both. The research component involved:

- semi-structured qualitative interviews with parents, teachers, governesses and students of the two schools of distance education in rural and remote Australia
- observations
- informal communications
- a review of the set curriculum.

By necessity, interviews were conducted by telephone.

The action component consisted of educational activities, which included:

- motivational and informative guest speakers
- hands-on activities.

The activities were created and improved using the self-reflective *plan, act, observe, reflect* spiral recommended by Kemmis & McTaggart (1988).

The interviews with the first school were used as a pilot study to test the language appropriateness and suitability of the interview questions, and to gauge whether the participants thought the project was worthwhile. At this school two teachers, two parents, one governess and five students each participated in a one-on-one qualitative interview. The pilot school was not involved in the action component, due to limited resources.

The main project took place with the second school of distance education, whose students were dispersed over an area in excess of half a million square kilometres. The project involved qualitative interviews carried out both before and after the action component. The original plan—to involve only primary students in the main study—was widened to accommodate secondary students following parent and teacher requests. The activities that made up the action component took place throughout the 2008 school year; they were created in consultation with the school community, and improved after reflection and additional feedback. Parents, teachers, governesses and students (around

160 primary and 20 secondary) were invited to participate in all activities.² Of these, 22 students, nine teachers, 12 parents and two governesses provided informed written consent to participate in the interviews after information sheets and consent forms had been emailed to families and made available at one face-to-face school gathering, in keeping with the terms of approval for this project given by the James Cook University Ethics Committee. Three verbal replies were received after the actions had started but were not accepted, because the intention was to determine a baseline before the actions took place. The data from one student, one teacher and one parent were not included as they left the school before completing both interviews.

Different learning styles were accommodated using a variety of educational activities chosen to inform the school community about health professional careers. These educational activities,³ which made up the action component, included:

- initiating a guest speaker series entitled *Could I become a health professional?*
- organising activity days with the theme ‘Our beautiful body: Love it or lose it’ held in various buildings (including town halls and the bar area of a country race track) in six locations within the main school catchment area
- providing age-appropriate library books related to health professional careers, the human body and illness
- creating a place on the school internet Blackboard site for the project
- displaying brochures of the many health career courses in the school foyer and at two town libraries in the school catchment area (the school display also had a model hospital with model patients)
- visiting the closest Royal Flying Doctor base
- weaving information about health professional careers into each interview
- presenting, on request, information to the Parents and Citizens’ Association and to a branch of the Isolated Children’s Parents’ Association
- placing information in the school newsletter and school magazine.

Interview transcripts were analysed for:

2 All school members might potentially have participated in something in the project because, for example, the activity days were part of the curriculum, while morning notices over the air, emails and mailouts were available to all the school.

3 The educational activities have been outlined in papers drawn from this research (Gorton, 2008b, 2009a, 2009b, 2011, 2012) and presented at the ‘Are you remotely interested?’ Rural and Remote Health Conference, 15–17 March 2008, Mount Isa, Australia and the World Congress of Internal Medicine, 20–5 March 2010, Melbourne, Australia.

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- knowledge (e.g. of different health professions), similarities and differences in relation to this knowledge, evidence of change of knowledge, and emergent themes (e.g. a relationship between exposure and knowledge)
- perceptions of, and aspirations to, occupations in health, and factors influencing these.

The students' responses were treated as evidence of their understanding of the world and their experience of it, rather than their objective grasp of social reality or their factual knowledge.⁴

The set curriculum materials which formed an integral part of the school's teaching were explored to provide data on any health professional career information they contained, because I conceived that the curriculum had the potential to make up for the environmental shortfall of information about the health professions for these students.

My place in this research

My own lived experience played a crucial role in this research in at least 3 ways. First my roles as a medical practitioner, community member and parent in Outback Australia made me acutely aware, well beyond the findings of the research literature, of the seriousness of the health issues for rural and remote Australians. This drove me to undertake the project and motivated me to use a practical focus for the project. Finally as home tutor for my own children I learnt to appreciate the important role the education provided by School of the Air had in the lives of outback families. This shaped the design and my conduct of the study so there were direct potential benefits for the school communities.

⁴ The information in this section has been published in articles drawn from this project (Gorton, 2011, 2012).

Note

There are three points I wish to make before discussing the project further.

- This thesis does not set out to criticise past or present health professionals in rural and remote Australia, many of whom have worked tirelessly to provide health care to residents, but rather to contribute to sustainable ways to increase the health workforce in these areas.
- The curriculum was explored looking for information related to health professional careers. The intention was not to criticise the distance education curriculum, which fulfilled wide, sweeping objectives.
- Most of the children involved in the study lived on rural properties. My aim was not to draw those children who had a passion for the agricultural industries away from their agricultural career aspirations. I recognised, however, that while not all the children could ‘come home to work on the farm’, they might still aspire to live in a rural or remote area. Informing them about careers in the health professions widens their options and provides those who might be unable to return to the farm with another career option available in these areas. I also recognised that an off-farm income could provide considerable financial benefit for those on the farm, because of the vulnerability of agricultural industries to seasons, market fluctuations and changes in legislation.

Limitations

This project involved predominantly primary-level students living in rural and remote Australia, and enrolled at two schools of distance education. Given more resources, it would have been worthwhile to have interviewed more students, teachers, parents and governesses, and to have involved both schools in the health professional career educational activities.

The review of the curriculum materials was an integral, but time-consuming, part of the study. The curriculum materials included activity sheets, mathematics and LAC books produced by the education department, audiotapes and videotapes, and resource books. The accuracy of the quantitative review of the resource books, in contrast to the other materials, was limited, because the resource books were not uniform in font, format or page size. Nevertheless, an overall understanding of the availability and nature of the information about health professionals and the human body in the resource books was achieved.

Terminology

There is some terminology which warrants explanation here.

There are numerous definitions of the term *rural* (Alloway, Gilbert, Gilbert & Muspratt, 2004), with 'no perfect rural definition that meets all purposes' (Hart, Larson & Lishner, 2005, p.1154). In Australia, as in other countries, 'there is considerable confusion as to exactly what rural means and where rural populations reside' (Hart et al., 2005, p.1149). This thesis negotiates the territory between rural health and rural education terminology, and uses the term *rural* for all of Australia except the capital cities and Townsville, the Gold Coast, the New South Wales Central Coast, Newcastle, Wollongong and Geelong. This definition has been selected because it is the one used by the Association of Australian Rural Nurses, the Council of Remote Area Nurses Association and the National Rural Health Alliance in defining rural and remote area health services (Courtney, Edwards, Smith & Finlayson, 2002).

The definition of 'a person living in a remote area' given in section 49 of the *Queensland Education (General Provisions) Act 2006* is used in relation to the students studying through distance education who are considered in this study. This definition is given in full in the glossary.

I also discuss the concept of a 'sustainable long-term rural and remote health workforce' or 'sustainable health workforce in rural and remote Australia'. *Long-term* is difficult to quantify, as there appears to be no generally agreed definition. When I refer to *long-term* or *permanent health professionals* I am referring to people who intend to stay in the community for an indefinite period rather than leave at the first opportunity, and who are known to so intend. The expressions 'sustainable long-term rural and remote health workforce' and 'sustainable health workforce in rural and remote Australia' refer to a workforce sufficient to fulfil the long-term health service and research needs of the people living in rural and remote Australia. This workforce would be staffed by health professionals who want to be there because of their love of, or connection with, the community and its culture, or their passion for rural health and their drive to care for these particular people. The literature suggests that such a workforce is likely to be made up mainly of people with rural or remote backgrounds, as well as those with urban backgrounds who have a genuine love for the bush and concern for rural health (Australian Medical Workforce Advisory Committee [AMWAC], 2005a; Hensel, Shandling & Redelmeier, 2007; Murray & Wronski, 2006; Playford, Larson &

Wheatland, 2006; Sen Gupta, Hays & Murray, 2007). Some outreach and telemedicine⁵ services would still be required to provide specific specialist and subspecialist services, and to contribute to the professional development of staff. Such a workforce would perpetuate itself, given working conditions conducive to retention, and would provide greater investment in patient care because less money would be spent on the higher pay rates of agency and locum staff, and on the human resources, advertising, travel and temporary accommodation costs involved in recruiting temporary staff to rural and remote areas (Adler, Yu & Datta, 2009; Smith & Gray, 2009; Wakerman, Curry & McEldowney, 2012).

School of the Air

The institutional name *School of the Air* needs clarification. School of the Air is defined by the online Crystal Reference Encyclopedia as

a two-way radio educational service for Australian children living in isolated areas; begun in South Australia in 1951 to supplement correspondence teaching and reduce feelings of isolation. The Aussat satellite (launched in 1985) was partly intended to improve the technical quality of the broadcasts (School of the Air, 2005).

The 'air' lessons with teachers form only one part of the students' school day. For most of the day students learn from set curriculum materials which they complete under the guidance of their home tutor. They may also participate in infrequent face-to-face events provided by the school.

The two-way radio has now largely been replaced by the telephone and, in some districts, the internet as the means of communication between teachers and their widely dispersed students during air lessons.

I describe School of the Air in more detail when I contextualise the research in Chapter 3.

5 *Telemedicine* refers to the delivery of health services across a distance using communication methods such as videoconferencing and email (Smith & Gray, 2009, p.15).

Findings

Before a student can aspire to a career, they must know that such a career exists (Gottfredson, 1981, 2002, 2004; Johnston, 1994; Watson & McMahon, 2005; Watson et al., 2010). From early childhood, the students in this study had been exposed to a wealth of experiences, information and role models associated with the agricultural industries generally and, more specifically, the beef industry. In contrast, their exposure to information about health professional careers, either in their daily lives or through their formal education, was limited. Not surprisingly, these students generally had little knowledge of the diverse range of the health professions before their participation in the actions provided by this project. For many students, knowledge of health professionals was limited to an awareness of the existence of doctors and nurses. This limited knowledge applied to both boys and girls, and was associated with negative perceptions of, and lack of aspiration towards, these careers. Although the older students displayed more knowledge of health occupations, they still had a narrow view of the range of careers available in health. The only exceptions were students who had extensive exposure to health professionals through family illness or injury, and/or a parent who was a health professional.

After the educational activities most students displayed more knowledge of the range of health professional careers. More importantly, this increase in knowledge was associated, in general, with a positive shift in perceptions of, and aspirations towards, these occupations. What two teachers and two parents described as the ‘eye-opening’ effect of the project on these students is epitomised in the following Year 3 student’s comments about health professional careers at the follow-up interview:

People may not have thought that it would be that good for them, but when they tried it, it’s like, WOW!

This tentatively suggests that health professional career education may have a positive influence on these students’ knowledge, perceptions and aspirations in relation to careers in health. Ideally such education should:

- start early
- be ongoing, relevant and accessible
- employ multiple delivery methods
- include those involved in influencing students’ career choices (Gottfredson, 1981, 2002, 2004; Hartung et al., 2005; Watson & McMahon, 2005).

Inhibitors

Inhibitors blocking the knowledge, perceptions and aspirations of these students in relation to the health professional careers were found to be numerous:

- Not only did the severe shortage of health professionals in rural and remote areas mean there were few occupational role models, but existing health professionals in these areas were not always inspiring because they were often overworked and stressed.
- Some of the methods used to recruit staff inadvertently *diminished* the presence of role models the students could connect with; for example, ‘fly-in-fly-out’ and other short-term health professionals were not visible role models out in the community.
- The extensive use of ‘outsiders’, such as overseas-trained health professionals, was perceived by some interviewees as interfering with students’ ability to see these careers as available to locals like themselves.
- The relocation of School of the Air bases away from local Royal Flying Doctor bases, and the change in nursing education from local hospital-based training to university education, hundreds of kilometres away, meant that today’s distance education students had even less exposure to role models and information about health careers than previous generations. Older participants expressed the belief that hospital-based training of nurses should still have a place in the special circumstances of rural and remote Australia, because it had:
 - provided an accessible health career for local students, who went on to become long-term nursing staff providing continuity of care for rural- and remote-living patients
 - supplied a small wage during hands-on training
 - made a valuable social and economic contribution to the local community.
- Hospitals are the most common workplace of health professionals. These students perceived hospitals as busy, stressed and even ‘boring’. Some students also talked about staff shortages, long waiting times and limited facilities: ‘I think they need help’.
- Over half the students had general or focused fears—for example, ‘I don’t like blood’—associated with hospitals, doctors’ surgeries, medical equipment and health professionals. Whether these emotions were more prevalent in these students than they would be in matched children living in metropolitan areas is not possible to determine. Nor is it possible to determine whether they related to perceptions the children had heard expressed about health services in rural and remote areas. However, it is hard to imagine that these perceptions, particularly apprehensions and

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fears, would not negatively influence students considering a health professional career.

Some of the students provided evidence that education can alleviate at least some of these fears. An unexpected outcome from the program was that students discovered they could have health careers without being exposed to elements that provoked apprehension and anxiety. For example, one student who didn't like blood indicated an interest in physiotherapy after the educational activities.

Facilitators

Facilitators for the knowledge, perceptions and aspirations of these students towards the health professional careers were found to be few. The overall positive view study participants held of the Royal Flying Doctor Service and parents' desire to see their children financially secure in their adult life could act as facilitators. The practical and caring experiences of their childhood may also play a facilitating role.

Perceptions of parents and teachers

Parents' and teachers' perceptions of health professionals and hospitals were important because of their support role in shaping and realising students' career aspirations.

Although there were examples of positive experiences, parents, overall, expressed concern about the limited hospital services they had access to. Their concerns related to:

- physical aspects ('our local hospital really does need a major upgrade')
- the standard of care ('we've had a lot of cases where the medical standard has not been up to scratch')
- the large workload of some health professionals ('there is only one doctor doing a huge area')
- the lack of continuity of care resulting from the short-term stay of most staff.

One parent who was also a health professional indicated that local permanent staff did not feel valued, partly because locum staff were paid at considerably higher rates than permanent staff, although the permanent staff provided stability and continuity of care.

Teachers were more positive, expressing a balanced mixture of positive and negative perceptions about their closest hospital.

Both parents and teachers spoke about the difficulties experienced by health professionals and patients when health professionals were recruited from other countries, particularly countries where English was not the first language. Both groups also spoke

only about doctors and nurses when discussing health professional staff, possibly exemplifying the limited range of health professional role models in rural and remote areas. Finally, parents and teachers had positive perceptions of the Royal Flying Doctor Service.

Parents wanted their children, first, to be happy in their chosen occupation; second, to have financial security. The parents' perceptions of which occupations their offspring would be happy doing appeared to influence whether they would encourage or discourage the child's pursuit of that occupation. For example, when parents were asked about their likely reaction if one of their children indicated a desire to be a health professional, one-quarter expressed reservations because of attributes of these jobs which parents believed would directly or indirectly lead to unhappiness. In contrast, parents were open about their family's 'love of the bush'. Possibly because of this, as well as the children's relatively abundant experiences and exposure to working on the land, parents and teachers perceived that most of them—especially the boys—would go on to work on the land, just as their parents and other students before them had done. There was a sense of natural progression. However, a proportion of the parents wanted their children to complete an apprenticeship, other training or a degree first. Parents envisaged the expertise acquired as something that the children could contribute to the community and that would provide them with some financial security—'something to fall back on'. Teachers and parents thought that more students would consider health careers if there was greater awareness of, and access to, these careers.

Issues relating to access

A career in the health professions involves a tertiary education, which for these students would mean relocating to a major centre hundreds of kilometres away. Such a relocation involves social, emotional, cultural, financial and family costs (Alloway et al., 2004; AIHW, 2011a; Cripps, 2011; Dunbabin & Levitt, 2003; Durey et al., 2003). Limited post-school options, apart from working on the land or in mining, were available. These options, such as an apprenticeship with the mines or working on a property, were visible and accessible, and did not involve all the costs associated with relocating for university—'You know, they might have a more strong connection back to the land. They might think, you know, the mines are close'. Clearly, for these students access to a health professional career course at university was limited compared with their access to an occupation in the beef cattle or mining industries.

Furthermore, these students' access to health professional career courses at university was limited compared with the access students living in a university city had to

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health professional career courses (Alloway et al., 2004; Australian Institute of Family Studies, 2011; AIHW, 2011a; Bradley et al., 2008; Cripps, 2011). This project's educational activities were able to positively influence students', parents' and teachers' knowledge, perceptions and aspirations in relation to the diverse range of health professional careers, at least within the timeframe of the project itself, but could not change students' access to health professional career courses, which remained an inhibitor. Financial support for tertiary education would alleviate the monetary costs, but not the other costs. There are those for whom the bond with family, friends, home or culture is so strong that relocating to university is not an option; yet if given the opportunity to become health professionals they might be likely to stay in the area as sustainable long-term staff for that very reason. These students needed exposure to provide them with knowledge to foster positive perceptions of, and aspirations towards, health careers, and they needed access to make such a career possible.

Curriculum materials

The set distance education curriculum materials provided such limited information about health careers that the teachers and home tutor parents perceived that students received virtually no information about careers from the school. References to health professionals were almost all to doctors and nurses, reinforcing the limited view participants had about the variety of these careers, and there was little information about the diverse fields in which doctors and nurses could work. Furthermore, a number of portrayals gave negative images of doctors, for example, the doctor in Henry Lawson's 1892 story *The drover's wife*: 'The last two children were born in the bush—one while her husband was bringing a drunken doctor, by force, to attend to her'. In addition, none of the information about health professionals was presented to the students as 'this is a career you could consider doing', or 'have you considered health as a career option?' One small section on planning to become a chef, a restaurateur, a fashion designer or a musical instrument maker was the only reference to career planning in the set curriculum materials of Years 3 to 7 inclusive. There were, however, lost opportunities, where health professional career information could have been incorporated into the learning materials with little extra work on the part of teachers, home tutors or students.

Summary

Rural communities are short of many different career role models. Health professionals, teachers and veterinarians are a few examples. This study explored one group of careers with these rural- and remote-living primary students—careers in health—and identified an associated shift in knowledge, perceptions and aspirations in

relation to these careers for almost all the students after health professional career education. It is reasonable to suggest that with well-thought-out, ongoing positive exposure from early childhood, perceptions of, and aspirations towards, these careers could be improved. One framework for achieving career education programs is available in the *Australian blueprint for career development* (Ministerial Council for Employment, Education, Training and Youth Affairs [MCEETYA], 2009).

The data from this study, and from the literature, emphasise the need for other changes before sufficient numbers of students from rural and remote Australia can progress to becoming health professionals in rural and remote areas, and thus both improve health services and provide health professional role models for these areas in the future. These changes include access to primary and secondary education, as well as health professional career courses, that compares with that available to students living in university cities. More action is also required to address the recurrent workplace issues that precipitate the loss of health professionals who are otherwise prepared to work permanently in rural and remote Australia.

Finally, the shortage of health professionals in rural and remote Australia, and the poorer health of the people living in these areas, provides an urgent imperative for ongoing research and action.

Thesis structure

In Chapter 2 I discuss the severe chronic shortage of health professionals in rural and remote Australia, referring to previous research aimed at understanding and addressing the issue. Strategies which have been put in place nationally and internationally and the place of students from rural and remote areas in solutions to the health professional shortage are reviewed here. Career development theories are explored generally and specifically in relation to these students and the perceptions and aspirations they might hold in relation to health careers. Chapter 3 contextualizes the research and discusses the project design in detail. Next Chapter 4 explores the sources for learning that students growing up in rural and remote Australia might encounter as a basis for including health professions among the careers they might consider pursuing. Part of Chapter 4 is the review of the state government's distance education set curriculum materials for Years 3 through to 7 inclusive. Following on from this Chapter 5 examines the students' knowledge of the health professions before and after the project's educational activities and the facilitators and inhibitors of this knowledge. Parents' and teachers' knowledge of health professional careers is also reviewed here. Then Chapter 6 looks at the students' perceptions and aspirations towards the health professions, and

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issues related to this, before and after the educational activities used to inform the school community about these careers. Knowing the important role parents and teachers play in children's career choices, in Chapter 6 I also review parents' and teachers' perceptions of students' career aspirations, and parents' aspirations for their children. Chapter 7 draws the project to a close with suggestions for the future to widen student career choices and to improve the severe shortage of health professionals in rural and remote areas of Australia where the people have poorer health than their metropolitan peers.

Chapter 2: A review of the literature

Rural and remote Australia has a severe chronic shortage of many types of health professionals (AIHW, 2008a, 2011b; Department of Health and Ageing [DHA], 2008a). This issue is a national concern (AIHW, 2011b; Kamien & Cameron, 2006), because the people who live in these areas have worse health than their metropolitan peers (AIHW, 2004, 2006, 2008a, 2008b, 2011b; Baade, Youlden, Coory, Gardiner & Chambers, 2011; Jamieson, Armfield & Roberts-Thomson, 2006).

This chapter begins with a discussion about the shortage of health professionals in rural and remote Australia. Next, strategies to address the shortage are reviewed to demonstrate why further research and action are warranted. I then present one of the main research findings underpinning this study: that health professionals with a rural or remote background are more likely to work in rural and remote areas than colleagues raised in the city. This draws in a discussion of the literature about students living in rural and remote Australia and health careers—their interest in these careers, their enrolment in health career courses, and the barriers to health professional careers that they face. Next I review the literature on health career promotion to students living in rural and remote Australia as a recruitment strategy to overcome some of the barriers. I then discuss theories of career development. I am interested in this area because it points the way to an understanding of some of the barriers between students in rural and remote Australia and health professional careers, and thus to the conceptualisation of this project. Before concluding, I look at parallels and lessons to be learnt from health workforce issues in Canada, the United States and the United Kingdom, focusing first on problems that are similar to those of rural and remote Australia in relation to the shortage of health professionals and the under-representation of students from these areas in health professionals career courses, then on solutions used in these countries which may be applicable to rural and remote Australians.

The chapter closes by highlighting the gap in the literature which forms the focus of this thesis: issues relating to the knowledge, perceptions and aspirations primary school students living in rural and remote Australia and studying by distance education have in relation to health professional careers, before and after exposure to health professional career educational activities.

The shortage of health professionals in rural and remote Australia

Rural and remote Australia needs many more health professionals to care for the sick and injured living in these areas (Rural Health Standing Committee, 2012; AIHW, 2011b; AMWAC, 2005a; Bureau of Transport & Regional Economics, 2006; Kamien &

Cameron, 2006; National Health Workforce Taskforce, 2009; Pesce, 2011; Sheldon et al., 2008). The shortage—which is well known throughout Australia—negatively influences the lives of people living in these areas, who, in general, have worse health than their metropolitan peers (AIHW, 2006, 2008a, 2008b, 2011c). The higher death rates and poorer health outcomes of people living in rural and remote areas is most marked for Indigenous people (Australian Indigenous HealthInfoNet, 2012; Esler, 2011; Jamieson et al., 2006; Johnston, Lea & Carapetis, 2009; Kirkham et al., 2010; O’Grady & Chang, 2010; O’Grady et al., 2010; Reiner, 2010). I will discuss Indigenous health later in this chapter. Many studies have been undertaken, and many papers have been written, in attempts to understand this complex problem (AIHW, 2010, 2011b, 2011c; Courtney et al., 2002; Dunbabin & Levitt, 2003; Hensel et al., 2007; Mills, 1997; National Health Workforce Taskforce, 2009; O’Callaghan, McAllister & Wilson, 2005; Orpin & Gabriel, 2005; Peachey & McBain-Rigg, 2011; Playford et al., 2006; Productivity Commission, 2006; Scott, 2009; Sen Gupta et al., 2007; Strasser, 1992; Veitch, Underhill & Hays, 2006; Wright et al., 2006).

Addressing the shortage

A large number of potential solutions to the shortage of health professionals in rural and remote Australia have been put in place (Adler et al., 2009; Alexander & Fraser, 2001; Couper & Worley, 2010; Drake, 2010; Fraser et al., 2003; Ho & Maddern, 2011; Moran, Sue, Birden, Fisher & Hancock, 2009; Pond, Dalton, Disher & Cousins, 2009; Schoo, Stagnitti, Mercer & Dunbar, 2005; Scott, 2009; Smith & Gray, 2009; Van Der Weyden & Chew, 2004; Wakerman et al., 2009; Wronski, 2003). These can be broadly classified as *short-term* and *long-term* strategies. In exploring these strategies in the following paragraphs I have mainly drawn examples from medicine, partly because the shortage of doctors has been particularly problematic, and partly because these examples illustrate both the strengths and the weaknesses of the different strategies. My focus on the shortage of medical professionals specifically can be taken to illustrate the broader problem of the shortage of health professionals generally, and should not be seen as detracting from the important role other health professionals play in rural and remote health, nor from the importance of steps being taken to address shortages of these workers.

Short-term strategies to address the shortages of doctors in rural and remote Australia generally aim to recruit and retain doctors from somewhere else to these areas. These strategies have included the Rural and Remote General Practice Program (DHA,

2008b; Dunbabin & Levitt, 2003), rural retention payments and the active recruitment of overseas-trained doctors.

The Rural and Remote General Practice Program provided funding to rural workforce agencies in each state and the Northern Territory for a range of activities and support to improve the rate of recruitment of general practitioners to work in rural and remote areas, and their retention (DHA, 2008b; Department of Regional Australia, Regional Development and Local Government, 2010). The Rural Retention Program provided incentive payments to long-serving general practitioners in rural and remote communities that might otherwise experience significant difficulties in retaining general practitioners (DHA, 2008c). In 2010 this program was transitioned into the 'general practitioners component' under the new General Practice Rural Incentives Program (DHA, 2010; Medicare Australia, 2011). Programs to recruit overseas-trained health professionals have resulted in the employment of approximately 5500 overseas-trained doctors per year on temporary visas, and 500 per year on permanent visas (Byrne, 2007a). In 2006, 25 per cent of the Australian medical workforce were overseas-trained doctors, compared to about 19 per cent ten years previously (Productivity Commission, 2006). This figure had increased to one third overall by 2008 (DHA, 2008a), with international medical graduates constituting 40 per cent of the rural general practitioner workforce in 2008–09 (Rural Health Workforce Australia, 2011).

Long-term strategies (which have an inherent lag time before they can produce results, or responses to them can be assessed) include targeting students at school or in post-secondary health professional courses. Rural coursework and rural clinical placements have been introduced during undergraduate studies to promote rural practice to undergraduate health professional students (Courtney et al., 2002; Henry et al., 2009; Worley, Prideaux, Strasser, Silagy & Magarey, 2000; Wilson et al., 2009). For example, all Australian medical schools now offer some rural components (Wronski, 2003). To facilitate the integration of rural components into undergraduate medical courses and to promote postgraduate studies and research on rural health issues, 11 university departments of rural health, 14 rural clinical schools and the first medical schools in regional centres have been established (Abbott, 2007; Dunbabin & Levitt, 2003; Gregory, Armstrong & Van Der Weyden, 2007).

Other strategies to promote work in rural areas to medical students have included John Flynn scholarships, bonded medical places and the higher education contribution scheme (HECS) reimbursement scheme. John Flynn scholarships, introduced in 1997, provide financial support for medical students to spend two weeks each year in the same rural centre for four years (Australian College of Rural and Remote Medicine, 2012;

Dunbabin & Levitt, 2003). The bonded medical places scheme provides medical school places to students in exchange for six years of post-graduation service in areas of workforce shortage (DHA, 2012a; Lawson, Chew & Van Der Weyden, 2004). The 2000–01 federal budget announced the HECS reimbursement scheme as part of the 'Regional health strategy: More doctors better services' program. The scheme offers reimbursement of HECS medical fees for years of service to those who undertake training or provide medical services in designated rural and remote areas of Australia (DHA, 2007, 2010, 2012b).

Strategies to increase the number of rural students entering health professional career courses have also been put in place. Health career promotion and training workshops are available to some rural secondary students (Durey et al., 2003; National Rural Health Students' Network, 2012c). There are now rural entry schemes to a number of health professional career courses, with targets (Wright et al., 2006). For instance, in the last decade the Commonwealth Rural Undergraduate Steering Committee set a target for medical schools of 25 per cent of students with a rural background (Dunbabin & Levitt, 2003). Scholarships for students with rural backgrounds have also been established. For example, rural Australia medical undergraduate scholarships, commenced in 2000, are allocated to 100–120 students of rural origin each year. Initially this was in return for a commitment to practise in rural and regional areas for at least seven years after post-graduate generalist or specialist training (Dunbabin & Levitt, 2003), but the scheme is currently not bonded (National Rural Health Alliance, 2012).

Why ongoing research and action are needed

Ongoing research and action are essential to address the shortage of health professionals in rural and remote Australia, for a number of reasons.

First, as already mentioned, rural and remote Australians have poorer health than their metropolitan peers in several health outcome areas (AIHW, 2006, 2008a, 2011c; Baade et al., 2011; Clark et al., 2007; Jamieson et al., 2006). This is explored in the next section.

Second, the marked discrepancy in health care availability between major centres and rural/remote areas raises questions of social justice (AIHW, 2008a, 2008b, 2011b; Bureau of Transport and Regional Economics, 2006; DHA, 2008a; AMWAC, 2005b; Jong, Vale & Armstrong, 2005; Nuss, 2007; Rural Health Standing Committee, 2012; Underhill, Goldstein & Grogan, 2006). For example, Australians in rural areas have higher levels of need than metropolitan Australians for allied health services, yet they receive half the level of service provision from allied health professionals such as

physiotherapists, podiatrists, occupational therapists and social workers (Schoo et al., 2005). As another example, the Northern Territory has the highest per capita alcohol consumption in Australia, but does not have a practicing specialist in addiction medicine (Conigrave, 2010, p.6).

Third, the shortage 'has reached crisis proportions over the last decade' (McGrail, Humphreys, Scott, Joyce & Kalb, 2010, p.94), with the health workforce supply at 'a critical level in many rural and remote communities' (Rural Health Standing Committee, 2012, p.39).

Fourth, there have been issues with some of the strategies that have been put in place to address the shortage (Birrell, 2004; Bundaberg Hospital Commission of Inquiry, 2005; Byrne, 2007a; Cooper & Ralph, 2007; Courtney et al, 2002; Docherty, 2002; Gorman, 2010; McGrath, 2004; Mitchell, 2007; Mooney, 2007; Orpin & Gabriel, 2005). Some of these issues are discussed in the following paragraphs to highlight the need to continue the search for new solutions.

Neither the HECS reimbursement scheme nor the bonded medical places scheme has been successful in attracting the anticipated numbers of students. In 2007, for example, half the allocated funds for the HECS reimbursement scheme were not utilised (Mooney, 2007). Furthermore, the Australian Medical Students Association remains fundamentally opposed to the idea of bonding students without financial incentive (Mitchell, 2007).

Responses to the use of rural coursework and rural attachments during undergraduate years as a recruitment strategy have varied (Courtney et al., 2002; Henry et al., 2009; Wilson et al., 2009). For example, a 2004 study of first and final year students in medicine, nursing and pharmacy at the University of Tasmania reported that

none of those who recalled undertaking rural coursework felt that it had influenced them towards a rural career and over two-thirds felt that this exposure had actually influenced them away from such a career. (Orpin & Gabriel, 2005, p.2)

In the study, three students reported that undertaking a rural placement influenced them towards a rural/remote career, while 35 reported being influenced away from such a career (Orpin & Gabriel, 2004, p.2). A later study of 239 health science students at the same university concluded that a rural placement in the undergraduate health science programs had a 'predominantly positive influence on students' intention to work in a rural community post-graduation' (Doulton, Routley & Peek, 2008). In another study, one in six medical students reported experiencing a potentially harmful incident during remote placement (Patel, Underwood, Nguyen & Vigants, 2011). Although this was not

part of the study, it is possible to imagine that such an experience could deter a student from considering a career in rural or remote medicine.

In contrast, a Western Australian study of 429 allied health and nursing students reported that a short, voluntary, high-quality rural placement increased the chance of future rural employment for these students (Playford, Larson & Wheatland, 2006). Similarly, a Queensland study of medical students reported that rural undergraduate training increased the chance of new graduates choosing non-urban internships, although the long-term effect on the rural medical workforce remained unknown (Eley & Baker, 2007).

The active recruitment of large numbers of overseas-trained health professionals to rural and remote areas of Australia has had national and international consequences. Many overseas-trained health professionals come from countries in much greater need of health professionals than Australia (Cooper & Ralph, 2007; Wilson et al., 2009), making such recruitment ethically questionable. Recruiting overseas-trained health professionals is possibly also unsustainable for their countries of origin and is potentially damaging to Australia's relationship with these countries; as Professor Des Gorman (2010), executive chairman of Health Workforce New Zealand, put it:

Our [New Zealand's] nexus with Australia is problematic and primarily serves Australia's interests. The level of emigration of doctors and nurses to Australia is unsustainable for us. (p.7)

The main outcome from the World Rural Health Conference in 2002 was an initiative to 'curb the "poaching" of health-care professionals by developed nations' (Docherty, 2002, p.10). The conference created a

code of practice to encourage all countries to meet their own workforce needs and discourage recruitment and other activities that could harm another country's health-care system. (Docherty, 2002, p.10)

Despite this code of practice, five years later at the 2007 national conference of the Australian Medical Association (AMA), Professor Rob Moodie, from Melbourne's Nossal Institute of Global Health, was quoted urging the AMA to explore how Australia can be self-sufficient with doctor resources: 'otherwise we give aid with one hand, and with our need for doctors we take away with the other' (Byrne, 2007b). Then in 2011 Dr Andrew Pesce, president of the AMA, in his speech at the World Medical Association Symposium, questioned the right of wealthy countries to address their own workforce shortages with recruitment policies that worsen workforce and skills shortages in developing countries (Pesce, 2011, p.10). It seems both commonsensical and logical that

wealthy countries such as Australia should be producing enough of their own health professionals without needing to recruit health professionals from less fortunate countries (Sheldon et al., 2008).

In Australia, while many overseas-trained health professionals have provided dedicated health care of a high standard to the Australian public (Harding, Parajuli, Johnston & Pilotto, 2010; Rural Health Workforce Australia, 2011), there have also been problems. Overseas-trained health professionals, their families and the rural/remote families they serve often have to cope with cultural and language differences, as well as differences in health service expectations. In recent years an increasing proportion of overseas-trained doctors have come from non-Western training backgrounds where 'the standards and relevance of knowledge and skills to Australian patient needs are uncertain' (Birrell, 2004, p.639). In the United States and the United Kingdom, an overseas-trained doctor 'must pass a test of English, medical knowledge and clinical skills before being allowed to practice' (Birrell, 2004, p.635), followed, in Canada and the United States, by a requirement to work in a probationary residency position (Birrell, 2004). In Australia, the requirement to pass an English test has only been instituted in recent years, and, 'with few exceptions, overseas-trained doctors are permitted to practise without having to pass a test of medical knowledge and clinical skills' (Birrell, 2004 p.639). For Australian-trained doctors the mandatory training and assessment required to practice in Australia is long and complex (McGrath, 2004). The markedly variable background, training, and communication and clinical skills of overseas-trained doctors, in combination with the absence of standardised assessment procedures, have been reported to put a strain on the Australian healthcare system, especially in outer metropolitan and rural hospitals as well as in general practice (McGrath, 2004). Both the potential to compromise patient safety (McGrath, 2004) and an increased supervisory burden (National Health Workforce Taskforce, 2009) have been reported in association with using overseas-trained health professionals to fill vacancies. There is now sufficient evidence to show that Australia's IMG (International Medical Graduates) assessment and support processes are in need of an overhaul (Rural Health Workforce Australia, 2011, p.10).

Extensive media coverage of the Bundaberg 'Dr Death' case (Bundaberg Hospital Commission of Inquiry, 2005; Van Der Weyden, 2005), and the alleged link between a very small number of overseas-trained doctors and terrorism, generated widespread anxiety (Byrne, 2007a; Cook, 2007; Thomas & Hosenball, 2007; Wilson, 2007), despite assurances to the public and health professionals by the AMA (Cartmill, 2007). The Bundaberg Hospital Commission of Inquiry's report, a document that was freely available to the public, stated that

several cases ... have come to the attention of the Commission of Inquiry, involving registrants who have obtained [medical] registration [in Australia] through the concealment of their disciplinary histories in other parts of the world. (Bundaberg Hospital Commission of Inquiry, 2005, pp.7–8)

The actions of one surgeon at the Bundaberg Hospital, and the inquiry that followed, inevitably led to immeasurable personal costs to patients, their families, their friends and other health staff. In addition, in 2005 the inquiry was estimated to have cost the Australian public six million dollars (Morton, 2005). By 2010 the figure had risen to 16 million dollars (Channel Seven, 2010). This money, the benefit of hindsight suggests, might have been better spent some years earlier providing more opportunities for Australian school students to become health professionals.

Although the recruitment of overseas-trained health professionals ‘must not be seen as a long-term solution to our doctor shortage’ (Van Der Weyden & Chew, 2004), instead being intended to offer a ‘short-term reprieve’ (Rural Health Workforce Australia, 2011), there is evidence that the shortage of doctors in Australian country areas and the use of foreign doctors ‘held captive by regional registration’ in these communities (Cooke, 1968, p.17) spans over 40 years. Furthermore, a press release by the Australian Doctors Trained Overseas Association in 2010 acknowledged that ‘OTDs [overseas-trained doctors] have been used to shore up rural/remote healthcare chasms’, and ‘it hasn’t even worked. Regional healthcare is worse now than it ever has been’ (Australian Doctors Trained Overseas Association, 2010). What may disappoint both patients and overseas-trained health professionals is that even over 40 years ago recruitment of overseas-trained doctors was considered ‘politically expedient ... [but] ... not always satisfactory’ (Cooke, 1968, p.17).

While overseas-trained health professionals may not be more likely than Australian-trained practitioners to have a history of professional misconduct, their past records from overseas are harder to obtain and validate. Positively a case-control study of doctors about whom patients had complained to the Victoria Health Services Commission between January 2000 and 31 December 2009 reported overseas trained doctors had lower odds of being complaint-prone than those trained in Australia (Bismark, Spittal & Studdert, 2011). Thus while there is antedoctal evidence and some research that points to successful deployment of overseas-trained health professionals to rural areas the research and literature, including a media statement by Australian Doctors Trained Overseas Association, suggests that it does not provide a successful sustainable solution to the shortage of health professionals in rural and remote Australia.

Attracting nurses from elsewhere to address areas of shortages has also been recognised as a panacea rather than a solution (Nowak, 2000).

The extensive use of short-term employment models to provide health professionals in rural and remote Australia has also not been without problems. High staff turnover not only interferes with the continuity of care of patients on an individual basis (British Broadcasting Commission, 1998; Coleman, Spurling, Aaskew & Hayman, 2011; Wakerman et al., 2012); it also interferes with maintaining systems of patient management and therefore the best outcome for patients and communities (Nel & Pashen, 2003, p.2). For example, in a sustainable chronic disease management project in remote Australia, high staff turnover was repeatedly identified as one inhibitor to the program's sustainability (Wakerman et al., 2005). Even in Australian capital cities, with nursing agency staff, for example, there have been difficulties matching the skills of available health professionals to the requirements of vacant positions, and concerns about the limited continuing professional development of agency staff generally (Peerson, Aitken, Manias, Parker & Wong, 2002). In rural and remote Australia, with a smaller pool of health professionals willing to work in these areas and more limited opportunities to access continuing professional development, these problems are exacerbated. Furthermore, it is highly likely that the reported lost potential for rural and remote communities associated with fly-in-fly-out employment models in other industries, such as mining (ACIL Tasman, 2009; Rockhampton Regional Council, 2011), also applies to the health sector, although there appears to be no published Australian research on the subject which looks beyond the effect on patient care.

Australian medical schools, despite community needs, may continue to produce health professionals not prepared to work in rural and remote areas. For example, an evaluation of the four criteria used by one medical school to select medical students found that none of the criteria was significantly associated with choosing medical students who had a positive attitude towards working in underserved communities (Quinlivan, Lam, Wan & Petersen, 2010, p.247). Although the study only involved one medical school, the same selection tools—a weighted grade point average on primary degree, Graduate Australian Medical School Admissions Test (GAMSAT), interview score and portfolio score—are also used by other Australian medical schools (Lawson et al., 2004; Quinlivan et al., 2010).

International students studying at medical schools throughout the country represent 20 per cent of medical students in Australia (DHA, 2008b). These international students have recently been recognised as making a substantial contribution to the Australian medical workforce, because many stay on and work in Australia instead of returning to

their country of origin (Hawthorne & Hamilton, 2010, p.262). However, while these international medical students may contribute to the total medical workforce, they cannot be seen as substantial contributors to the rural health workforce as most prefer 'city rather than regional or rural training locations' after graduation (Hawthorne & Hamilton, 2010, p.262).

Not all Australian medical schools, despite recommendations from the Bradley review (Bradley et al., 2008), appear concerned about ensuring that medical degrees are accessible to all Australians (Pitney, 2011; Roberts-Thomson, Kirchner & Wong, 2010; Van Der Weyden, 2007), including students from rural and remote Australia. I phoned each medical school in the state in which I live, partly to ensure that my research was not duplicating what the medical schools were already doing to open the pathway between their courses and rural and remote school students, and partly to obtain information about positions for these students. It was very difficult to obtain any information, but at one medical school which did give information there were between 150 and 200 places set aside in each year level for international students, but less than one quarter of this number for students from rural and remote Australia. The number of students from rural and remote areas as a percentage of the total number of students would appear to be far less than the 25 per cent target referred to on page 21. Another medical school reported no places for rural and remote students. It is possible to imagine that the enrolment of considerable numbers of international medical students poses some of the same ethical dilemmas as the recruitment of large numbers of overseas-trained health professionals because, as noted in the previous paragraph, many stay on to work in Australia, leaving their home countries without many of their bright young adults to care for their sick. At the same time, Australian students who are prepared to work in rural and remote areas may be unable to obtain places at the medical schools. Given also that medical graduates progress through a number of years of further training while working as junior doctors, the situation puts further pressure on the health system's capacity to provide sufficient post-graduate training to all doctors (Brazil, Greenslade & Brown, 2011, p.165).

The University of Melbourne has recently remodelled its medical course to a full-fee-paying masters degree (Cresswell, 2011; Roberts-Thomson et al., 2010). This remodelling circumvents the federal government's ban on domestic full-fee-paying places for undergraduate programs introduced in 2009 (Marshall, 2011, p.12; Roberts-Thomson et al., 2010). Such remodelling is likely to work against solving the severe health professional shortage in rural and remote Australia, or making medicine a career pathway available to students from all socioeconomic backgrounds (Van Der Weyden, 2007). The cost, around \$220,000 for the four-year program (Cresswell, 2011, p.10), eliminates most

students from rural and remote areas—who must also find the money for additional costs such as relocation, accommodation and meals. Overseas experience indicates that such fees eliminate most students from all socioeconomic groups except the wealthiest (Van Der Weyden, 2007). Despite the target of 25 per cent of medical students from a rural or remote background (see page 21) (Dunbabin & Levitt, 2003), and concerns expressed by the Australian Medical Students' Association and the AMA (Cresswell, 2011; Roberts-Thomson et al., 2010) about the negative effect the University of Melbourne's remodelling of its medical course will have on students and on the existing maldistribution of the medical workforce, it is predicted that other medical schools may follow the University of Melbourne's lead.

Physician assistants (Ho & Maddern, 2011; Hooker, 2010) have recently been trialled in Australia as another strategy to address health workforce shortages. However, in the United States, where physician assistants emerged in 1965 (Ho & Maddern, 2011, p.257), only 16 per cent practice in non-metropolitan counties (NRHA, 2008). This suggests that, if introduced in Australia, physician assistants will add to the health workforce maldistribution, because most are likely to prefer to work in cities.

Physician assistants' roles include treating illnesses and assisting in surgery (Ho & Maddern, 2011). While it is not recorded in the conference proceedings, delegates at the 'Are you remotely interested?' Rural and Remote Health Conference 2008 verbally expressed a concern that introducing physician assistants to Australia would reduce opportunities for procedural experience for medical students and doctors-in-training in situations where there are already too many wanting to learn hands-on from a limited number of patients. Procedural experience and expertise are essential for a medical practitioner wishing to provide safe care in rural and remote locations (Wilson et al., 2009). Further, there is growing awareness that as many as 60 per cent of Australians lack basic health literacy skills (Australian Bureau of Statistics [ABS], 2008b; Nutbeam, 2009; Saunders & Peerson, 2010). This means that many Australians find navigating a complex, rapidly changing and often impersonal health system increasingly difficult, and are thwarted in their search for the right care, at the right time, in the right place, from the right person (Jackson, Nicholson & McAteer, 2010, p.284). To introduce another classification in what is already a complex and chaotic health service landscape could lead to further patient confusion and dissatisfaction.

Indigenous issues

People living in rural and remote Australia have poorer health than their metropolitan peers (AIHW, 2004, 2006, 2008a, 2011c, 2012; Baade et al., 2011;

Jamieson et al., 2006). As noted earlier, this is one reason why it is essential to continue research and action to address the severe shortage of health professionals in these areas. In this section I focus on the health of Indigenous Australians, not to detract from the health needs of all rural and remote Australians, but because of their significant health problems and to support the need for ongoing research. I include in this discussion relevant points about the education and employment of these Australians which cannot be ignored when considering health issues in rural and remote Australia, and opportunities for future improvement.

Australian Indigenous people have poorer health than non-Indigenous Australians. Indigenous health problems culminate in up to a 17-year difference in life expectancy between Aboriginal and Torres Strait Islander Australians and the rest of the Australian population (Australian Indigenous HealthInfoNet 2012; AIHW, 2010; Capolingua, 2007; Roxon, 2007). On a number of measures, the Australian Indigenous population also has poorer health than Indigenous populations in other developed countries. On some measures their health is even worse than that of Indigenous populations living in developing countries (O'Grady & Chang, 2010, p.461). The following statistics illustrate this. In 2001–04, 13 per cent of Australian Indigenous newborns had a low birth weight. This rate was twice that for non-Indigenous Australian newborns (6%) (Leeds et al., 2007, p.43). It is also higher than that for Indigenous people living in the developed countries of Canada (5.4%), New Zealand (7.3%) and the United States (6.6%) (Sayers & Boyle, 2010, p.475), and similar to those reported for the developing populations of Angola (12%), Guatemala (13%) and Uganda (12%) (United Nations Children's Fund & World Health Organization, 2004). Around 80 per cent of Australian Indigenous children have otitis media by 12 months of age, a prevalence that is among the highest in the world (Kirkham et al., 2010, p.569). Twenty per cent of Indigenous children have tympanic membrane perforation, a rate exceeding the 'threshold of 4 per cent that the World Health Organization considers a massive public health problem requiring immediate action' (Kirkham et al., 2010, p.569). These health discrepancies are urgently important, and are the health reasons behind the Australian government's 'Closing the gaps' program.

The connection to this study is that Indigenous people—who have poor health by national and international standards—make up 48 per cent of the total population in 'very remote' areas, and 16 per cent of the total population in 'remote' areas of Australia (ABS, 2008a, p.3). Indigenous adults living in central Australia, for example, experience bloodstream infections, associated with a high risk of death, at rates that are among the highest reported in the world (Einsiedel & Woodman, 2010, p.567). For hospitalised

Northern Territory Indigenous children, the rates of severe pneumonia are also among the highest in the world (O'Grady et al., 2010, p.592), as is the incidence of rheumatic fever among Indigenous people living in remote Australia (AIHW, 2010; Brown, McDonald & Calma, 2007; Carapetis, Wolff & Currie, 1996).

For Indigenous Australians living in rural and remote Australia, education, employment and health problems interact in a complex and intimate manner. Far fewer Indigenous rural young people complete high school, compared to their non-Indigenous peers (ABS, 2011a, 2011c; AIHW, 2010; HREOC, 2000b), they are considerably under-represented in higher education (ABS, 2011b; Bradley et al., 2008, p.32), and young Indigenous adults have great difficulty finding employment (Alston & Kent, 2003; AIHW, 2010). The health benefits of work are now well-known (Australasian Faculty of Occupational and Environmental Medicine, 2010). In many Indigenous communities, at the same time as Indigenous adults are unable to find employment, there are perpetual problems staffing the Indigenous health centre or the hospital.

The United Kingdom recognises the value of having the composition of the health workforce mirror the social groups in the community. Consequently, as I will discuss later in this chapter, students from minority groups in that country have been actively educated, supported and recruited to the health professional careers from as early as primary school level (Angel & Johnson, 2000). Similarly, in New Zealand many Maori recommend the 'by Maori, for Maori and with Maori' approach to answer some aspects of their service delivery conundrum (Buchanan & Malcolm, 2010, p.472). Furthermore, Dr Della Yarnold, Indigenous academic facilitator of the Northern Territory Medical Program, has indicated that an Aboriginal doctor can have a broad positive influence on the community and on individuals; for example, when asking Indigenous patients to modify lifestyle factors, an Indigenous doctor can put this into context (Yarnold, 2010). In rural and remote settings a barrier to accessing health services is language and culture, especially for Aboriginal and Torres Strait Islander people (Rural Health Standing Committee, 2012). Increasing the number of Indigenous students who can go on to become health professionals for their communities would appear to have potential benefits for both them and their communities.

Worldwide there is an association between health and education, with higher levels of formal education associated with better health (Johnston, Lea & Carapetis, 2009). In Australia, a disproportionate number of Aboriginal students fail to complete secondary school (ABS, 2011c; HREOC, 2000b; Johnston et al., 2009). Although some Australian Indigenous students may consider the possibility of a health career in primary or secondary school (Drysdale, Faulkner & Chesters, 2006, p.12), one study involving

Indigenous students from Victoria and New South Wales found that the students knew little about health careers (Kelly et al., 2009). In another study, only 26 out of 144 career advisers surveyed demonstrated the knowledge, skills and understanding necessary to support and advise such students (Chesters et al., 2009).

After secondary school, other factors also inhibit university study for Aboriginal students. These include:

- the isolating experience of leaving a close-knit rural community
- lack of Indigenous staff at the university
- limited support
- culturally inappropriate teaching
- the influence of past experiences on motivation (Kippen, Ward & Warren, 2006).

While many rural and remote areas are characterised by a loss of their young people due to migration to the city (Alston & Kent, 2003; Halsey, 2009; Larson, 2006), Indigenous youth are more likely to remain in their communities than are their non-Indigenous peers (Larson, 2006). These factors contribute to poor recruitment and retention figures for Indigenous students in tertiary studies, including the health professional courses (Bradley et al., 2008). For example, the University of Newcastle has a special entry pathway for Aboriginal candidates to the Bachelor of Medicine curriculum. Despite a stated intensive support program for these students and an emphasis on Indigenous health, of 57 students admitted over a 14-year period, 18 had withdrawn or been excluded and only 18 had graduated (Garvey, Rolfe & Pearson, 2000). Only 0.7 per cent of undergraduate students who completed a health-related course in 2004 were of Aboriginal and Torres Strait Islander origin (AIHW, 2007, p.1026). Furthermore by 2006, when this project started, there had been no meaningful increase in the numbers of Australian Indigenous medical students for some years (Drysdale et al., 2006, p.12). Health career promotion, as well as community support and liaison with the university, have been identified as some of the issues needing to be addressed in other studies (Rural Health Standing Committee, 2012; Kippen et al., 2006) to improve the ability of Indigenous students to participate and achieve success in these tertiary studies.

For Indigenous Australians, 'there is now little doubt that schooling is an integral part of the attempt to improve health outcomes' (ABS, 2011a; Brewster, 2010, p.457). This project uses 'schooling' as the platform upon which to improve the health outcomes, the breadth of occupational opportunities, and the supply of health professionals for the people in rural and remote Australia.

Old research through different eyes:

The literature and the reality

To recapitulate: so far I have outlined the urgent need to improve the shortage of health professionals in rural and remote Australia because of the poorer health of the people who live in these areas. Much research and various actions have been undertaken, but more are required, because there is still a shortage of a diverse range of health professionals in these areas—reported to have reached crisis point in the last decade (McGrail et al., 2010)—and because there have been problems with some of the solutions put in place. Furthermore, there is now a *global* shortage of health professionals (Sheldon et al., 2008), which intensifies the need to find local solutions for the shortage of health professionals in rural and remote Australia, and to consider the real world views of the people who live there (Braithwaite, Skinner & Doery, 2011, p.261). In addition, the Australian Health Ministers' Advisory Council's Rural Health Standing Committee recently concluded that

to address the complexities of rural and remote health it is necessary to plan and design health services and health policy specifically 'for rural by rural' rather than trying to adapt and apply a metropolitan health care model. (Rural Health Standing Committee, 2012, p.45)

A number of Australian and overseas studies report that a health professional who grew up in a rural area is more likely to return to work in a rural area after graduation (Dunbabin & Levitt, 2003; Henry et al., 2009; Hensel et al., 2007; Hoyal, 1994; Hughes et al., 2005; Laven & Wilkinson, 2003; McGrail et al., 2011; Murray & Wronski, 2006; Orpin & Gabriel, 2005; Playford et al., 2006; Rogers et al., 2010; Sen Gupta et al., 2007; Strasser, 1992; Wilkinson et al., 2000). The findings of these studies, which span around two decades, are the basis for encouraging more students from rural and remote Australia into the health professional careers as one strategy to address the shortage of health professionals in those areas.

There are many potential benefits to recruiting rural- and remote-living students to health professional careers, with the goal of producing health professionals who will work in these areas. Such recruitment could benefit patients, rural and remote communities, other health professionals and the students. The most important benefit, given sufficient numbers (and working conditions encouraging staff retention), would be better access to health services for patients. This in turn is likely to provide opportunities to improve the relatively poor health of the people in these areas. It could also give patients confidence about the training, knowledge, skill levels and transparency of

conduct records of the health professionals serving them, in contrast to the current situation which is dependant on global recruitment.

Opening up pathways between rural and remote students and rural and remote health professional careers is, given sufficient numbers, likely to alleviate the current pressure on other health professionals (mostly raised in the city, and mostly very early in their careers) to do country relieving locums. City-raised health professionals and their families normally decide where to live and work on the basis of their career, social and educational aspirations; and usually this is not outside a metropolitan area (Armstrong, Gillespie, Leeder, Rubin & Russell, 2007). However, with the severe shortage of health professionals in rural and remote areas of Australia, there are expectations that they will do locums or compulsory 'stints' in the country (Wilson et al., 2009). As I indicated earlier (pages 22–23), research has shown that even for health professional students this can be a frightening, challenging and overwhelming experience (Couper & Worley, 2010; Hays et al., 1995; Patel et al., 2011; Peachey & McBain-Rigg, 2011). For example, Hays et al. (1995) noted a 'genuine fear of many city-raised medical students that life away from the large coastal cities would be unbearable', while others have reported that medical students on rural placement find the isolation from their peers and other support structures more significant than they had anticipated (Couper & Worley, 2010, p.35).

Opening up pathways between school students in rural and remote Australia and health professional careers in these areas would also widen the career choices of the students. A health career provides a secure position in the rural and remote workforce, with a comfortable income. Unlike the many agricultural occupations in rural and remote areas, an occupation in health is not susceptible to weather and market fluctuations. Students would have the opportunity to gain personal satisfaction from serving the community, and to belong to professions which are generally well-respected. Nursing, for example, topped the Roy Morgan *Image of professions* survey for the 18th year in a row in 2012 (Morgan & Levine, 2012) as the most honest and ethical profession.

If students from rural and remote areas were to go on to become competent, permanent health professionals in these areas, this would bring other benefits to their communities. The economic decline in rural and remote Australia compared to the economic growth in metropolitan areas has already been mentioned. Currently a large proportion of the health workforce in rural and remote areas are short-term staff (including relievers, locums and agency staff). Because of the short-term nature of their stay these staff, in general, do not contribute economically to the town in which they are based—most of the salary they earn goes with them when they leave. In the United States it is recognised that 'in rural communities, health profession jobs are significant

economic drivers and recruiting rural youth to health professional careers is a long-term economic investment' (NRHA, 2006, p.5). Temporary health professionals are also less likely to be able to contribute to the (official or unofficial) voluntary workforces that exist in most country communities. These workforces include committees, clubs and church groups, such as the Country Women's Association, Parents and Citizens Associations, Rotary Clubs and Rural Fire Brigades. Their role in helping to hold rural and remote communities together, especially in times of ailing government services and of adversity, is well-known in rural and remote Australia. In contrast, a permanent health professional would have more opportunity, and the long-term commitment to the community, to contribute to the voluntary workforces of the district. Having an increased number of permanent residents with tertiary education qualifications also has the potential to 'impact on the social capital and educational profile of the region' (Grey, 2006).

Despite these potential benefits, few students from rural and remote Australia have the opportunity to become health professionals in rural and remote areas (Australian College of Health Services Executives, n.d.). More concerning, their numbers could decline further. For example, Heaney's (1998) study of 2205 secondary students living in rural and remote New South Wales found a relatively low level of interest in health careers, including medicine, nursing and allied health (p.2). Almost all health careers require tertiary education. Students from rural and remote areas of Australia have restricted access to tertiary education (Alston & Kent, 2003; HREOC, 2000b). In 2001 it was known that in Western Australia, for example, students from rural and remote areas were under-represented in health related courses at university (Durey, McNamara & Coffin, 2001). Despite these warnings signs, the number of students from rural and remote Australia accessing and participating in tertiary education fell further in the five years to 2007, with these students remaining under-represented in medicine and the paramedical sciences (Bradley et al., 2008). Although there have been some improvements since the Bradley Report, the number of students from remote Australia in tertiary education in 2011, for example, was less than in 2001 (Department of Industry, Innovation, Science, Research and Tertiary Education, 2011).

Rural areas often experience an exodus of their young people in search of work or education simultaneously with a local skills shortage (Alston & Kent, 2003; Halsey, 2009; McMahon & Rixon, 2007). The skills shortage includes the shortage of health professionals, which in rural and remote areas is a significant problem with dire consequences. According to Bruner (1996), education 'is a complex pursuit of fitting a culture to the needs of its members and of fitting its members and their ways of knowing to the needs of the culture' (p.43). An integrated approach that incorporates the education,

health and employment issues of rural and remote areas may be an important strategy for producing positive enduring outcomes for these areas (Halsey, 2009). With this in mind, in the following paragraphs I build on discussions in the previous section by providing a general overview of barriers in the pathway between students living in rural and remote Australia and health professional careers. This overview begins with a glimpse of these students' formal education, starting from early childhood where the foundations are first laid to make participation in tertiary education, many years later, possible.

The standard and quality of education available to students in rural and remote Australia has been of concern for some time (Alloway et al., 2004; Alston & Kent, 2003; Halsey, 2009; HREOC, 2000a, 2000b; James et al., 1999; Marks et al., 2000). Such concern was the catalyst for the formation of the Isolated Children's Parents' Association in 1971. Now with branches throughout rural and remote Australia, this volunteer organisation continues to work for equality of educational opportunities for children in these areas (Mitchell, 2011). In February 1999 the Human Rights and Equal Opportunity Commission (HREOC) initiated a National Inquiry into Rural and Remote Education (HREOC, 2000b), also in response to concerns about the education available to students in rural and remote Australia. Nevertheless, nine years later in 2009, the need to close the education gap for regional and rural Australia was again raised in the federal House of Representatives by the Member for Lyne, Mr Rob Oakeshott (Commonwealth of Australia, House of Representatives, 2009, p.5189).

In 2012, people living in rural areas are still disadvantaged in their access to educational and employment opportunities, which in turn restricts their opportunities for good health compared to people living in metropolitan centres (AIHW, 2012).

Factors shaping the standard and availability of education in rural and remote areas have included:

- difficulties recruiting and retaining quality teaching staff
- little professional development for teachers
- lack of teaching resources
- narrow curriculum choices
- lack of competition
- a sometimes negative attitude in the community towards education (Alloway et al., 2004; Halsey, 2009; HREOC, 2000b).

In recent years, the relatively poor availability and reliability of modern technology in rural and remote Australia compared to metropolitan areas (including the internet, which is provided at a slower speed but a considerably greater cost), has added to the

inequality (Alston & Kent, 2003; Nutt, 2011). In 2011, over a decade after the 1999 HREOC inquiry, Professor Alan Hayes, the director of the Australian Institute of Family Studies, noted that

distance can still be a tyranny and this is reflected in the fact that children in major cities tend to do better in terms of their physical development and learning outcomes, compared to children growing up in regional and remote areas. (Australian Institute of Family Studies, 2011⁶)

Rural school students make up approximately one third of all school students, but only 17 per cent of tertiary students (HREOC, 2000b). Similarly, around 10 per cent of those aged between 17 and 20 years from remote Australia commenced university or TAFE in 2001 compared to almost 40 per cent of those from major cities (AIHW, 2006, p.242). While access to tertiary studies is improving for urban students, it is, as I mentioned on page 34, actually declining for rural and remote students (Alston & Kent, 2003; AIHW, 2011a; Bradley et al., 2008; Department of Industry, Innovation, Science, Research and Tertiary Education, 2011). Alston and Kent (2003) argue that

globalization and the power differential it creates have had a significant social and economic impact on rural and remote areas of Australia in recent times. Major cities have benefited from the focus on the knowledge-based production that global capitalism demands, drawing in capital, people and resources. (p.6)

The reverse has occurred in rural areas, with a loss of population, services and job opportunities. As a flow-on effect, the barrier created by the relatively high costs for a rural student to attend tertiary studies affects opportunity, and has become too high for many rural students and their families (Alston & Kent, 2003; AIHW, 2011a). HECS fees, textbooks and daily travel are costs borne by all tertiary students. For rural or remote students, the distance between home and the tertiary centre means that extra financial costs are incurred. These costs include:

- accommodation away from home
- meals away from home
- travel to and from home (which must occur a few times every year to maintain some reasonable contact with family)
- long-distance phone calls.

These extra costs for rural and remote families have been estimated to be \$15,000 to \$20,000 per child per year (Cripps, 2011). Heaney (1998) found that the majority of these

6 While this study included participants from remote and very remote Australia, the numbers were too few to be included in the statistical analysis (Baxter, Hayes & Gray, 2011).

secondary students from rural and remote areas were well aware of these extra costs, their family's financial situation and the financial strain that their going to university would place on their family, and that, as a consequence, many compromised their aspirations and opted for a different direction after completing secondary school.

The financial cost of tertiary study, and limited primary and secondary educational opportunities, are only two of the barriers between rural and remote students and tertiary study. Alloway et al. (2004) recorded a daunting and diverse list of obstacles that interfere with Australian rural youths achieving their career aspirations. The list included:

- limited material resources
- few occupational role models
- experiences of a vulnerable economy
- personal and emotional issues and anxieties arising from having to move away for tertiary studies or work
- the powerful sense of loss of family and friends that follows.

For many young people, a sense of loyalty to their community and family 'undermines their choices and ultimately the broader service they may be able to offer the community through training in one of the health careers' (Durey et al., 2003).

The severe shortage of a diverse range of health professionals in rural and remote Australia means there is also a severe shortage of health professional role models for students in these areas. For the health careers, the number of occupational role models available to students living in rural and remote Australia is, unintentionally, even smaller than the number of health professionals serving their community. Fly-in-fly-out, drive-in-drive-out, and short-term health professionals are not visible role models in rural and remote communities. Alloway et al. (2004) found that the 'lack of occupational models in rural communities meant that students had fewer images from which to draw in envisioning what they might become' (p.249). This is reinforced by what students asked in Heaney's (1998) study of 2205 secondary students in rural New South Wales, referred to on page 34: 'How do you know what to do if you haven't had the chance to find out?' (p.29).

Some researchers have focused on the barriers between school students living in rural and remote Australia and health career tertiary courses. Many of these barriers, such as limited occupational role models, limited primary and secondary educational opportunities, and the costs and social dislocation involved with relocating to university, overlap with the barriers between these students and tertiary education in general, as discussed in earlier paragraphs. In addition, there is a professed lack of academic ability,

and cultural assumptions about gender and occupational roles, in rural and remote communities (Dunbabin & Levitt, 2003; Durey et al., 2003, p.147).

The noticeable gender difference in aspirations to tertiary education and to health careers warrants discussion. Considerably more girls from rural and remote Australia aspire to tertiary studies and to health careers than do boys (Alloway et al., 2004; Alston & Kent, 2003; Durey et al., 2001; Heaney, 1998; Hossain, Gorman, Lawrence & Burton, 2012). Although sensitive to economic downturn, regional and rural areas can provide apprenticeship opportunities where there are few other work opportunities. Most are in traditionally male-dominated industries such as the trades, which may explain lower female participation (AIHW, 2011a, p.118). The aspirations of rural females for tertiary studies reflect not only the attractiveness of the careers they offer, but also the paucity of other local work opportunities and, for some, a desire to leave the macho culture of the small town (Alston & Kent, 2003). Male students are 'socialised to a strongly masculinist and anti-urban culture' (Durey et al., 2001, p.3). They perceive that they have more local employment opportunities, usually involving outdoor work, such as an apprenticeship, farming or mining. As the health professional careers involve indoor work they are seen as part of the traditional space of women—to the extent that in some rural and remote areas, young males who do enter health professions risk ridicule from the local community (Durey et al., 2001). This occupational sex stereotyping is reinforced by the role models who are available in the community. For example, in Heaney's (1998) survey 22.1 per cent of mothers were engaged in health care, but only 7.2 per cent of fathers. A recent interview with two university students from a rural community in Queensland, the first in their families to attend university, indicates that, at least in their community, the pattern still exists:

As soon as the boys are at school they're like, 'I want to go to the mines'. With the girls uni's something the majority strive for, but with the boys it's more like, 'Oh, let's just get into the mines or do an apprenticeship'. That divide is pretty obvious. (Milsome, 2012)

The literature suggests that communities convey expectations and messages to their youth, Indigenous and non-Indigenous, male and female, about what is and is not a suitable career choice (Durey et al., 2001; Walker, 2006).

Health career promotion

Health career promotion to students living in rural and remote Australia is one strategy to increase the aspiration of these students to the health professionals careers. This strategy is based on previous research findings such as that 'many rural students

have little family or community support to continue with school and little help comprehending the possibilities and opportunities provided by higher education' (Alloway et al., 2004). Furthermore, students perceived that one reason few took up studies in the health careers 'was that they simply were not well informed about what health careers were available to them' (Heaney, 1998, p.29).

A small body of literature has looked at health career promotion to students attending high school in rural and remote Australia (Alexander & Fraser, 2001; Durey et al., 2003; Fraser et al., 2003; Heaney, 1998). One study of careers advisers in north-west New South Wales demonstrated the potential of health career promotion. In this study, after the introduction of a rural high school careers kit, a health promotional resource developed by the Rural Doctors Network of New South Wales, the number of students from the school attending a week-long health careers workshop in Sydney rose from seven to 38 (Alexander & Fraser, 2001). This implies that rural students may be a well-documented but relatively untapped resource in terms of future rural health professionals, such that 'increasing local capacity to "grow your own workforce" ' is one of the strategies proposed for 'recruiting the right workforce' in the 2012 *National Strategic Framework for Rural and Remote Health* (Rural Health Standing Committee, 2012, p.40).

The literature also suggests that there is no standardised approach to promoting health careers to students in rural and remote Australia. There does, however, appear to be potential to improve health career promotion to school students. For example, in the study referred to in the previous paragraph, one quarter of the careers advisers rated their knowledge of allied health careers as poor, and one fifth rated their knowledge of medicine as poor (Alexander & Fraser, 2001). Another study involving two of the same researchers found that health career promotion largely depended on the attitude of the careers adviser at the school, as well as their other workload (Fraser et al., 2003). Some careers advisers in rural schools also taught up to four other subjects (Fraser et al., 2003). The majority of these careers advisors reported that they did not have a directory of local health professionals or undergraduate health career students who were willing to be involved in health career promotion to the high school students, nor did they have access to resources such as a rural high school careers kit (Fraser et al., 2003). Additionally, when high school teachers from 15 high schools in rural and remote areas of New South Wales were surveyed about health careers, only half considered careers advisers as being significant in influencing student career choices (Heaney, 1998).

Not long before this project began, the National Rural Health Students' Network was formed. By 2012 this organisation, which 'provides a voice for [university] students

who are passionate about improving health outcomes for rural and remote Australians' (National Rural Health Students' Network, 2012a), had grown into a multidisciplinary health student network, comprising 29 Rural Health Clubs located at universities around Australia. The Rural High School Visits Program has become an integral part of the Rural Health Clubs' operations. These volunteer visits have made it possible for many rural students to learn about the diverse range of health careers for the first time. However, there is no rural primary school visits program. Furthermore, no visits to schools of distance education students are recorded on the organisation's website, and between 2009 and 2012 the closest rural school visited was 500 kilometres away from the main school of this study (National Rural Health Students' Network, 2012a, 2012b, 2012c).

In Queensland, the Health Careers in the Bush Program was created around 15 years ago to facilitate rural and remote students entering the health professional careers. This is an alliance of the Rural Health Training Units, the Mt Isa Centre for Rural and Remote Health, the Royal Flying Doctor Service, Education Queensland, the Queensland Aboriginal and Islander Council, and Queensland Health Workforce units. Each year the program hosts three five-to-seven-day workshops for high school students throughout the state who already have an interest in a health career (Hindmarsh, 2006). These workshops are recruitment and information drives, and are held in three different regional centres. Long-term follow-up indicates that of the students who attend a workshop, 90 per cent go on to become health professionals (N. Hindmarsh, project officer, Health Careers in the Bush Program, personal communication, 2006). In 2006, when this project commenced, no distant education student had ever attended one of these workshops. This last point was influential in the selection of the sample of students from rural and remote Australia for this study.

A subsequent review of the database for Health Careers in the Bush workshops up to 2012 found only one secondary level School of the Air student recorded to have attended a workshop (T. Zischke, Cunningham Centre, Toowoomba, personal communication, 2012). This student attended as a direct result of this project.

Two points need to be made here:

- To reiterate: secondary students were not the primary focus of this study.
- The database records only a student's current school, and therefore did not permit identification of students who had learnt through distance education during their primary years. For example, a second student who had been a School of the Air pupil throughout her primary schooling—eight years—attended a workshop as a consequence of her family being involved in this project. Because she was at

boarding school at the time of her attendance, she was not recorded in the database as a distance education student.

It could be argued that providing career information to rural and remote students is a greater priority than providing it to metropolitan students, to help overcome some of the barriers discussed above.

Late high school, however, is often too late for students to explore health professional careers, for a number of reasons:

- Subject choices and career aspirations are interdependent. Decisions about subject choices, even at the end of Year 8, can affect the range of career options available on leaving school (Johnston, 1994). In Years 10, 11 and 12, 'students usually have to make important decisions about subject choices that will have direct and indirect impacts on their post school work and study options' (Walker, Alloway, Dalley-Trim & Patterson, 2006). The students need to choose Year 11 and 12 subjects appropriate for the university course they aspire to in order to gain entry to that course (Alexander & Fraser, 2001; Fraser et al., 2003). For some subjects, a sound background gained in earlier years is necessary to achieve the standard of results in Year 11 and 12 required to be accepted into the chosen university course. This can be more difficult for rural and remote students, given the concerns about more limited educational opportunities in those areas as discussed on pages 35-36 (Australian Institute of Family Studies, 2011; AIHW, 2011a; HREOC, 2000b).
- Students need to have thought about a career choice prior to undertaking work experience, which usually occurs in Year 10 (Heaney, 1998). As one rural student put it, 'You have to decide what you want to do at work experience but you haven't had any information so you end up going where your dad knows someone and that's not what you even think you want to do' (Heaney, 1998, p.29).
- Addressing career issues only at this late stage ignores the influence of student aspirations on their motivation to learn through primary and secondary education. Quaglia (1996) likened student aspirations to glue that was responsible for holding the educational process together. With high school retention rates lower in rural and remote areas (AIHW, 2011a; HREOC, 2000b, p.119), and various studies suggesting that students who drop out of school at age 16 have psychologically disengaged from school as early as grade 3 (McWhirter, McWhirter, McWhirter and McWhirter cited in Schulthesiss et al., 2005, p.246), there are good reasons for early career exploration to open up the aspirations and motivation of these students. In Heaney's (1998) study the students believed that 'they need greater exposure to careers advice and that it should come earlier in their school life' (p.29).

- It fails to appreciate the time rural students and their families may need to undertake successful emotional, practical and financial preparation for the transition from a rural location to a metropolitan tertiary education. The goal should not be just to get the students to university, but also to see them complete their health professional courses and become health professionals. Success may involve considerable preparation and adjustment.
- Previous studies, as mentioned earlier, have highlighted a low level of interest in the health professional careers among secondary students living in rural and remote Australia (Durey et al., 2001; Heaney, 1998, p.2).
- Career development starts long before mid or late high school (Care, Deans & Brown, 2007; Gottfredson, 2002, 2004; Hartung et al., 2005; Hertig & Blackhurst, 2000; Lent, Brown & Hackett, 2000; Schulthesiss et al., 2005; Watson & McMahon, 2005), and continues over the course of life (Alloway et al., 2004). This point indicates the role of career development theories in understanding the low level of interest that high school students in rural and remote Australia have in the health professional careers, and in informing strategies for encouraging a far greater interest in these careers.

Career development theory

There is a growing body of literature, including two major reviews of research into career development in childhood, to support the conceptualisation of childhood as an important and integral part of an individual's lifelong career development (Hartung et al., 2005; Schulthesiss et al., 2005; Watson & McMahon, 2005). According to Linda Gottfredson, career aspirations begin in the preschool years and are an integral aspect of children's developing self-identity and perceptions of gender roles and social values (Care et al., 2007; Gottfredson, 1981, 2002, 2004; Helwig, 2001). Her theory divides the development of occupational aspiration into four stages:

- At stage 1, usually three to five years of age, children are orientated to size and power, and have a positive view of all occupations they know of.
- In stage 2, usually six to eight years, children's occupational aspirations are selected from a range according to gender stereotype, and they actively reject occupations they perceive as being associated with the opposite sex (Care et al., 2007; Gottfredson, 1981, 2002, 2004; Helwig, 2001).
- Stage 3 usually occurs between the ages of nine and 13. In this stage children are tuned into the social values of their everyday lives with family, peers and their community, and they use this in their occupational aspirations. Once again they actively reject occupations that are not regarded as acceptable in terms of gender or

social class. Occupations perceived to require more intelligence or other skills a child believes they lack may also be eliminated by compromise. What remains at this stage is a zone of acceptable possibilities taken from the total list of occupations the child is aware of.

- During stage 4, which begins at approximately 14 years, internal factors such as interests and personal needs play a predominant role. Here, adolescents consciously engage in a search through what occupations remain in their social space to find those that will be personally fulfilling (Gottfredson, 2004; Helwig, 2001).

When the lives of students living in rural and remote Australia are placed into the context of Gottfredson's theory of career development, it is possible to argue that many health professional careers are likely to be eliminated as early as stage 1. This is because the students may not know that some or any of these occupations exist, because the severe shortage of health professionals in rural and remote Australia means there is an absence of these role models from their social world. Subsequent rejection of the health professional careers could occur in stage 2 due to the strong gender stereotyping of the health careers by male students as an indoor profession, and in stage 3 because these careers lie outside the social values of their peers, their family and their everyday lives in their community.

Gottfredson's is only one theory of career development, but among career theorists 'it is generally acknowledged that it is during childhood that crucial career related concepts and attitudes are first formed' (Schulthesiss et al., 2005 , p.247). Like Gottfredson, Johnston (1994) reports that the more restricted a student's exposure to careers, the more restricted will be the pool of career options for the student to choose from. In keeping with this, it is widely argued that if career advice is to bring about any change, then it must be started early (ACER, 2010; McMahon & Rixon, 2007; Oppliger, Oppliger, Raber & Warrington, 2007; Proctor, 2005; Watson & McMahon, 2005), and it must be undertaken in a way that allows the students to perceive the careers as part of their social world and appropriate for their gender.

Some research suggests that carefully thought-out career information beginning in early childhood has the potential to improve school retention rates, student motivation in school, and participation and retention rates in tertiary education courses and in the workforce. For example, when Johnson (2000) interviewed 194 sixth grade and 179 ninth grade, primarily white, middle-class, suburban students in the Long Island district of New York, 87 per cent had no understanding, or very little understanding, of the type of work involved in their chosen career. The same study found that the students could not perceive the connectedness between school and work. It follows, Johnson argues, that if

career information is provided from an early age students are more likely to understand the relevance of school to adult life, and make more informed career choices, which should have a positive effect on retention through study and in employment. Similarly, a survey of 55,000 students from 55 tertiary institutions in Australia by the Australian Council for Educational Research (ACER) found that 40 per cent of first year tertiary students first considered university study while in primary school (ACER, 2010). According to ACER's Director of Higher Education Research, the results indicate that measures to encourage university study aimed at senior high school students may be misdirected, as argued on pages 41–43. He emphasised the need to look at ways to raise awareness of university study from an early age among under-represented social groups (ACER, 2010).

Despite the strength of the argument for early career advice, current health career promotion to students in rural and remote Australia, as already noted, is limited, and appears to be mainly directed at middle and late high school students. There was also no evidence of health career promotion to primary level students in rural and remote Australia in the literature when this project commenced. Furthermore, although there is widespread community and political interest in the shortage of health professionals in rural and remote Australia, a search conducted on May 30 2012 using the A+ Education data base, from 2000 to 2012, with the search terms 'health', 'medical', 'career', and 'education', independently and in combinations, searching all available fields (e.g. 'title', 'abstract', 'whole text'), failed to identify *any* articles on health professional career education to primary students in Australia, let alone in rural Australia.

Undocumented instances may have been occurring, and certainly after the action phase of this project isolated non-peer reviewed documentations of visits to primary schools by health practitioners and medical school students were available (Australian Medical Association Queensland, 2006; O'Connell, 2010; LIME Network, n.d.). In most cases the visits were not to rural or remote areas, and their aim was primarily to encourage healthy lifestyles and to build rapport with health professionals rather than to inform students about the health careers as career options. The LIME network⁷ ran a careers day for students 'heading for high school' in their school visits (LIME Network, n.d.), but did not appear to include younger students. Nevertheless, a recent study in

7 The LIME [Leaders in Indigenous Medical Education] Network is a Medical Deans Australia and New Zealand project. It seeks to be a dynamic network dedicated to ensuring the quality and effectiveness of teaching and learning about Indigenous health in medical education, as well as best practice in the recruitment and retention of Indigenous medical students (LIME Network, n.d.).

South Australia using a mixed method research design (including a Year 10 university experience, but not with younger children) concluded that

findings suggest that partnering with primary and secondary schools, hospitals, community organisations and a rural health school is a promising strategy to effectively meet the educational needs of regional students and communities. (Penman, 2010, p.28)

Together, these bodies of research point strongly to the importance of deliberate education focusing on health professional careers at the primary level to make up for environmental shortfalls, to stimulate students' motivation to learn, to widen career opportunities and to address the societal issue—the shortage of health professionals in rural and remote Australia.

Lessons to be learnt from other countries

There are noteworthy parallels between aspects of the health workforce distribution and socioeconomic background of the health workforce in Australia and those in other countries. In this section I outline research on these topics from Canada, the United States and the United Kingdom.

Canada and the United States

A chronic shortage of almost all types of health professionals is a problem in rural areas of other countries, including the United States and Canada (Bly, 2006; NHHA, 2005, 2006; Rosenblatt, Andrilla, Curtin & Hart, 2006). In Canada, for example, less than 19 per cent of family doctors practise in rural areas, where almost a third of the Canadian population lives (Bly, 2006). This is similar to the situation in rural and remote Australia, where, in 1998, 15.6 per cent of medical practitioners were caring for 28.7 per cent of the population (AMWAC, 2000), with a further accentuation of this imbalance over recent years (National Health Workforce Taskforce, 2009).

The health professionals most likely to practice in the rural areas of America are those with a rural background, a pattern echoed in Australia (NRHA, 2005). For example, 'the correlation between medical school admissions of rural born students and graduation of rural physicians of all types is +0.92' (NRHA, 2006, p.1).

Many of the barriers in the pathway between students in rural and remote Australia and the health professional careers discussed on pages 34–8 also exist in the United States. For example, the educational, social and financial support necessary to enter a health career is often weak or missing in rural and remote areas of America (NRHA, 2006, p.1), as in Australia. The two countries also share factors underlying these

inhibitors, such as problems attracting and retaining quality teachers and administrators in rural schools (Hardre, 2009; NRHA, 2006, p.2).

In the United States, the National Rural Health Association (NRHA) recommends practices and policies that result in more rural-born students entering the health professional careers (NRHA, 2005, 2006). The association published a series of policy papers on what they termed the 'rural health careers pipeline'. Their policy paper *Kindergarten to 12th grade education* (NRHA, 2006) contains a comprehensive list of recommendations for addressing the barriers between students living in rural areas of the United States and health professional careers. The recommendations include health career information and recruitment efforts to begin in elementary and middle schools, and directed to students, families, teachers and career counsellors (NRHA, 2006, p.2); Gottfredson's theory of career development (Gottfredson, 1981) and Wahl and Blackhurst's research (2000) on factors influencing the occupational and educational aspirations of children and adolescents are quoted in the rationale for this approach. The association also recommends a wide range of programs to appeal to different ages, and to increase both knowledge of the variety of health careers and awareness that these careers are available at various levels of education (NRHA, 2006; University of Louisville School of Medicine Office for Minority and Rural Affairs, 2001). Even before this, in 1995, programs sponsored and delivered by Area Health Education Centres introduced health careers to over 300,000 students ranging in age from kindergarten to college level (National Area Health Education Centers Organization, 2006).

The United Kingdom

The situation in Australia, where students with rural and remote backgrounds are under-represented in most health career courses (Bradley et al., 2008; Durey et al., 2001; Heaney, 1998), and the health of rural and remote Australians is, in general, worse than that of those who live in metropolitan areas (AIHW, 2006, 2008a, 2011c; Clark et al., 2007; Durie, 2011; Gregory et al., 2007) also has similarities to the situation in the United Kingdom. There, as in Australia, the social groups which are over-represented in the patient population are under-represented in the health workforce, most notably the medical profession (Angel & Johnson, 2000). This disparity is also reflected in courses preparing students for the health professions. For example, lower socioeconomic groups and certain ethnic groups remain under-represented in medical schools in the United Kingdom (Greenhalgh, Seyan & Boynton, 2004; Seyan, Greenhalgh & Dorling, 2004). Indeed, Hilton and Lewis (2004) reported a '600-fold difference between the most over-

represented (Asians from social class I) and under-represented (blacks from social class IV)' groups (p.1508).

Widening participation—that is, encouraging students from diverse backgrounds into higher education—has come to be seen as a political priority in the United Kingdom (Seyan et al., 2004). This arose through a recognition of the value of having the distribution of the health workforce mirror the distribution of social groups in the community (Angel & Johnson, 2000). The United Kingdom Council of Heads of Medical Schools has endorsed the principle that the intake of medical schools should reflect the ethnic and socioeconomic mix of the general population, and generous 'widening participation' payments have been provided for universities to recruit from under-represented postcodes (Greenhalgh et al., 2004, p.1541). A standardised admissions ratio has been developed as one tool for measuring these differences, and for evaluating the response to 'widening participation' programs (Hilton & Lewis, 2004; Seyan et al., 2004).

Studies by Greenhalgh and colleagues (Greenhalgh et al., 2004) and by Hilton and Lewis (2004) have documented strategies, analysed underlying factors those strategies might need to take into consideration, and suggested principles that should underpin future strategies for widening participation. Thus they report that a wide range of activities is involved, and evolving, in the Widening Participation programs. The St George Medical School in London alone runs over thirty different projects. These include facilitation and progression work, such as a pre-medicine summer school for 16-year-old students from under-represented backgrounds who are considering applying for medical school (Greenhalgh et al., 2006), and an extended medical degree program offered by the Kings College, London for non-traditional students from local schools (Hilton & Lewis, 2004).

Other Widening Participation programs work to raise the aspirations of school students from under-represented groups in health careers. One example is the interactive CD called *Taste of medicine*, also available on the internet (www.tasteofmedicine.com), which is used by individuals and groups such as classes of school children. *Taste of medicine* is produced by the St George Hospital Medical School and aims to challenge stereotypes, encourage students to pursue their education and raise awareness of the diversity of the health care positions. St George Hospital also runs 'Experiments Roadshows' (www.sghms.ac.uk/Courses/wp/index.htm) (Hilton & Lewis, 2004), and primary school visits. Both are visits to schools that fit in with the school schedule. For example, the Experiments Roadshow sessions fit into a lesson or double lesson time for Year 8–11 students, and aim to put science and health care teaching into context. They

are interactive and have different versions, for example prosthetics, or nursing (K. Lewis, Widening Participation Officer, St George Hospital Medical School, personal communication, November 7, 2006). The primary school visits have a similar approach, but are adapted for primary school children. The University of Wales College of Medicine runs a 'step-up' program, as part of widening participation, that reaches out to rural Wales to raise the aspirations of students (see www.f-a-c-e.org.uk/seminars.htm), and the University of Sheffield runs the Sheffield's Outreach and Access to Medicine Scheme program.

In a study of 14- to 16-year-old United Kingdom students who were academically capable and interested in science, from a diverse range of social and cultural backgrounds, Greenhalgh et al. (2004) sought to identify factors that might affect participation, such as:

- students' perceptions of medical school
- motivation to apply
- confidence to complete the course
- expectations of a medical career
- perceived sources of support and information.

They found that ethnicity and gender produced few differences in perceptions, but there were striking differences by socioeconomic status. The findings reaffirmed the idea that recruitment and retention in higher education reflects students' personal identity, motivation and social capital (contacts, influence, personal support), and the cultural framing of career choices. Consequently, the authors argued that policies aimed at widening participation in medical education should go further than the knowledge deficit model and 'address the complex social and cultural environment within which individual life choices are embedded' (Greenhalgh et al., 2004, p.1541). For example, the authors recommended that self-esteem, personal identity, and certain aspects of working class culture that oppose traditional academic aspirations and values should be acknowledged and addressed.

More generally, Hilton and Lewis (2004) recommended initiatives to widen participation using imaginative and unconventional approaches to inspire aspirations, understandings and attitudes. Further, an editorial on widening participation in the *British Medical Journal*, referring to the St George Hospital Medical School programs, emphasised that 'all these projects recognise the importance of working with as young a cohort of potential applicants as possible' (Hilton & Lewis, 2004, p.1508), which reflects the view held in the United States. Hilton and Lewis (2004) report that once a student is 'disenfranchised' in the educational system, little impact can be achieved.

The United Kingdom research also noted that females and some ethnic groups are no longer under-represented (Greenhalgh et al., 2004; Seyan et al., 2004), suggesting that initiatives to address imbalances can be successful. The important point here is that interventions in operation in other countries suggest both the possibility of successful interventions in Australia, and the need for further research to explore what interventions might work in the context of rural and remote Australia.

Summary

There is a shortage of a diverse range of health professionals in rural and remote Australia. This requires continued attention, because rural and remote Australians have poorer health than their metropolitan peers in several health outcome areas, and poorer access to services. Much research has been undertaken, and numerous potential solutions have been put in place, to address this shortage. Unfortunately there have been problems with some of the solutions, and the shortage has recently been described as reaching a crisis. The development of a global shortage of health professionals (Sheldon et al., 2008), resulting in other countries being depleted of health staff, increases the need to research how it would be possible for rural areas to produce much of their own health workforce. In 2012 the Australian Health Ministers' Advisory Council's Rural Health Standing Committee advised that 'to address the complexities of rural and remote health it is necessary to plan and design health services and health policy specifically "for rural by rural" '(p.45).

National and international studies show that a health professional who grew up in a rural or remote area is more likely to work in a rural area than a colleague who grew up in the city. Despite this research, and the potential benefits to patients, community, other health professionals and the students themselves, too few students from rural and remote Australia go on to become health professionals to overcome the shortage. Furthermore, most health careers involve tertiary education. The Bradley report (Bradley et al., 2008) highlighted that students from regional and remote areas are still seriously under-represented in higher education, with the participation rates from both geographical classifications falling further in the five years to 2008 (p.31). Of particular interest to this study is that these students remain under-represented in the medical and paramedical sciences. There is evidence that the tyranny of distance still has a negative influence on educational outcomes and opportunities for students from rural and remote Australia when compared to students from major cities (Australian Institute of Family Studies, 2011; AIHW, 2011a; Department of Industry, Innovation, Science, Research and Tertiary Education, 2011).

The career aspirations, expectations and perceptions of secondary students in rural and remote Australia have been studied in general terms and specifically in relation to the health professional careers. Overall there has been a low level of interest among rural secondary student in the health careers. Many barriers between rural and remote students and health professional careers have been identified. These barriers include:

- limited educational opportunities
- community attitudes
- lack of health professional role models
- occupational sex stereotyping
- low perceptions of academic ability
- restricted access to health career information
- the financial, personal, social, family and cultural costs associated with relocating to a distant university.

There is no evidence of previous research studying the knowledge, perceptions and aspirations of primary students living in rural and remote Australia in regard to the health professional careers.

In rural and remote Australia health career promotion has been initiated and studied. However, the studies indicate that such initiatives are targeted predominantly at mid to late secondary students and are piecemeal, varying in quality and quantity according to location. There is also evidence to suggest that these students need career information earlier to positively influence their motivation in school, as well as subject selection and work experience choices. Students from rural and remote Australia and their families may also need years to successfully prepare for the costs associated with the student relocating to a distant university. In addition, career development studies indicate that health career promotion in late high school alone is too late to shape most students' career choices.

Career development theories indicate that children start to develop ideas about careers in early childhood—long before the mid to late high school years. A variety of programs in both the United Kingdom and the United States actively promote health professional careers from a very early age (kindergarten) through to Year 12 to address the shortage of under-represented groups, including rural students, in the health professional career courses. There appeared to be no documented evidence of health career promotion to rural primary school children in Australia prior to commencing this study.

This study aimed to fill the gap indicated by the literature. It sought to investigate the knowledge, perceptions and aspirations primary students living in rural and remote

A REVIEW OF THE LITERATURE

Australia, and those instrumental in their career decision-making, have in relation to the health professional careers. Further, it sought to investigate whether exposure to educational activities to provide information about health professional careers could influence the students' knowledge and perceptions of, and their aspirations towards, health professional careers. In the next chapter I discuss the project design.

Chapter 3: Project design

The design for this project was broadly influenced by principles of action research, with the intention of exploring students' knowledge, perceptions and aspirations, and the ways they have been shaped.⁸ This recursive process involved information sharing and consultation, interviews, and educational activities. Children, parents, teachers and governesses took part in interviews and educational activities, both conducted at a distance except for one part of the educational activities that was undertaken face-to-face. The main study was preceded by a pilot study with a different school of distance education, to gauge interest, elicit community support, collect initial input and trial the proposed interview approach.

In keeping with the intent to explore individual knowledge, perceptions and aspirations, this study adopted a qualitative approach. As I explained in Chapters 1 and 2, the foundations of career choice are developed in childhood, so I focused mainly on primary school children. Responding to concerns identified in the literature review with recruiting Australian rural and remote students into the health professions, I chose to examine two distance education schools whose enrolments were almost entirely made up of geographically isolated students. The pilot study was conducted at one school of distance education, which I will refer to as the *pilot school*, while the main study was undertaken at a different school of distance education, which I will refer to as the *main school*. In adopting and implementing this approach I was both influenced and assisted by my membership of the main school community.

This chapter shows in detail each aspect of the design and implementation of the study. I begin the chapter with a broad overview of my research design, followed by a discussion of the steps taken during the initial information and consultation stages with the school communities. I then discuss the formal and informal support received to allow the project to proceed. After that I contextualise the research, detail the participants and discuss the design of the questions in the qualitative interviews. I outline the nature and purpose of the educational activities, and discuss why the set distance education curriculum materials were reviewed, before concluding with the critical considerations involved in implementing the project.

8 The methodology has been outlined in publications drawn from this research (Gorton, 2011; Gorton, 2012) and presented at the 'Are you remotely interested?' Rural and Remote Health Conference, 15–17 August 2008, Mount Isa, Australia and the World Congress of Internal Medicine, 20–5 March 2010, Melbourne, Australia.

Research design

The broad design of the project reflected several considerations. The design involved, at its core, initial information-sharing and community feedback followed by two rounds of qualitative interviews either side of a suite of activities designed to provide information about, and to promote interest in, the health professions. From action research, it drew an understanding that research intended to influence a community and its values and practices must involve the community from the ground up. From the general literature on qualitative research, it drew the understanding that semi-structured qualitative interviews are the best way to explore the knowledge, perceptions and dispositions of people on a matter of interest (Burns, 2000). Furthermore, qualitative research offers a sound approach to take in a relatively new area of research (Liamputtong, 2009). This research was interested in the knowledge, perceptions and dispositions the distance education students had in regard to the health professions.

The overall research and design involved:

- close, recurrent consultation with members of the school community
- development of educational materials
- interviews.

Part of the justification for using this approach comes from the literature on action research. Action research is a practical problem-solving approach to research (Burns, 2000). As the rural/remote health professional shortage is a practical problem, in a social situation (rural Australia), action research methodology was the logical choice for this project. Furthermore, an earlier study of career advisers in north-west New South Wales and their promotion of the health professional careers concluded that an exploratory action research approach may elucidate ‘additional, locally specific and effective health career promotional strategies’ (Alexander & Fraser, 2001, p.148).

The *collaboration, participation* and *cooperation* components of this project, and of action research, enriched the project. For example, as the researcher I could only bring to the project my perspective; however, by collaborating with teachers, parents, governesses and isolated students, I achieved a greater depth of understanding. These components also ensured that participants gained new knowledge. As Bruner (1996) has pointed out, acquired knowledge, as opposed to didactically imposed knowledge, is the most useful. Bruner also argued that

if you treat people, young kids included, as responsible, contributing parties to the group, as having a job to do, they will grow into it—some better than others, obviously, but all benefit (p.77).

Actions were planned after reflection on the data drawn from informants, in keeping with standard action plan strategies. These actions explored health professional careers with the students, teachers, governesses and parents, in a manner appropriate for distance education.

My other core research strategy was to conduct *interviews*. The literature suggests that qualitative research is needed ‘to hear more silenced voices’, and ‘when there is a need to understand the contexts or settings that play a crucial role in the lives of the research participants’ (Liamputtong, 2009, p.xii). No previous research is available that explores health professional careers with primary students living in rural and remote Australia, or with distance education students. Furthermore, the pathway between these students and health professions is influenced by the students’ everyday lives. In addition, qualitative research allows exploration of issues from participants’ perspectives (Liamputtong, 2009, p.xiii). With these considerations in mind I chose semi-structured qualitative interviews, positioned before and after the educational activities, to collect this study’s main data. I designed the questions so that the interviews had both research and education components, so that participants would also gain information simply from participating in the interview.

Other data were also collected during the main study. This data included:

- responses to initial presentations about the project to parent, governess, student and staff groups within the school community
- subsequent informal communications from members of the school community.

These communications involved feedback on the project as a whole, or elements of it. They were recorded anonymously, and only with the permission of the school members.

I also kept a journal throughout the year of the educational activities with the school.

Finally, I reviewed the state education department’s set primary curriculum papers for distance education students, looking specifically for the exposure primary distance education students had to information about the health professions in the set curriculum papers.

The pilot study aimed only to provide information about the project, to test and refine the qualitative questions, and to gauge the relevance of the study for a rural and remote community. It involved only one set of qualitative interviews. The main study involved initial interviews and consultation, followed by action-research cycles of planning, acting, observing and reflecting in relation to the educational activities. The main study ended with follow-up interviews.

PROJECT DESIGN

I also considered two other possible research approaches to collecting data for this study. A *quantitative* approach, such as a multiple choice mailed survey questionnaire, would have offered operational advantages, such as time and financial economy. Such an approach may have also provided statistical data and correlations. However, there were disadvantages to using quantitative methodology for this study. For example, a mailed survey often only offers preset response options, which would have limited the depth of the study and, therefore, the wealth of knowledge able to be gleaned from it. Providing space to allow short answer responses might have added to the depth of information gathered. However, I discounted using a written survey requiring short answer responses because of the nature of the task. My judgment was that providing data in a conversational interview was less onerous for the participants than providing written answers. While it may sound stereotypical, my observation as a bush person myself is that spoken text is preferred over written text in populations like the one I was researching. A written survey constitutes ‘office work’, while a qualitative interview conversation only asks participants to do what they do every day—talk. Furthermore, many participants were primary students, so the reading, comprehending and writing tasks involved in doing a written questionnaire may have skewed and limited responses.

An *ethnographic* study was also considered. Such an approach would have attempted to capture the social reality of the distance education school community being studied, because an ethnographic study is concerned with generating and developing theory on the basis of a close description of a community’s life. The ethnographic approach is not a homogenous technique, but involves a variety of methods of data collection. A frequently employed technique involves observing what it is like to be part of the scene—the physical setting, the activities and the interactions of the people concerned. The participants in this study, however, were scattered over a geographical area greater than half a million square kilometres. Given this context, direct observation of each participant in their world, within their boundary fence, was not practical. Other techniques used in ethnographic research, however, such as listening to participants, observing students and parents at the activity days, and telephone interviews were employed in this study.

Initial information and consultation

First of all, my broad strategy was to let all the members of the school community know about the study, to elicit their interest and support. At both schools, communication began with the school principals and worked outwards through the school communities. At the pilot school, the school community was informed of the project through a staff

member. Information about the project was distributed verbally, and by written information sheets. At the main study school, I informed each broad group within the school myself.

Within the main school community, these broad groups consisted of the staff, the parents, the governesses and the students. To embrace each of these groups as welcome participants to the study, I presented an introduction to the project to each group and to the school as a whole. However, partly because of the huge distances that separate individuals belonging to this school, partly because of the dependence on technology and travel, and partly because participation by any individual family in any particular school activity is contingent on many factors outside the school's influence, there was still no guarantee that every member of the school heard about the project before it was implemented.

At the pilot school, written information sheets and consent forms were distributed by a staff member who actively informed potential participants about the project. The staff member was given this task by the principal with whom I had been communicating. Participants indicated their willingness to be involved in the study by returning signed consent forms.

Communications with the main school also began with the school principal. In 2007, around 12 months before initiating the main school project, I floated the idea with the school principal to gauge the practicalities of implementation in the distance education setting, the likely response from the school community, and the school's previous experience with research projects. I continued intermittently to report on the progress of the development stage, asked questions as they arose and sought permission for each of the subsequent steps throughout the project. I was always conscious that the project needed to fit in with an already busy school timetable.

At the main school, in contrast to the pilot school, I presented verbal information about the project separately at telephone meetings of the governesses' group, the Parents' and Citizens' Association and the School Council. I also presented an outline to school families over the phone at morning notices. Finally, I did two face-to-face presentations, because communicating by phone denies audiences access to non-verbal cues.

The first face-to-face presentation was to the school staff. The second was to the home tutors at the first face-to-face gathering of the whole school for the year. These verbal presentations were reinforced by information sheets, consent forms and Power-Point slides. In presenting the project, I felt obliged to ensure that my approach was not to confront or go against the existing values and career aspirations of community members

for their children, but merely to demonstrate that a job in health was a worthwhile pursuit, and would make it possible for the student to return to work in a rural area.

Despite all this, for the reasons outlined above, I still could not be sure that every member of the school community knew about the project before it began.

Formal and informal support

From the start, the project was conceived as one that would be responsive to the needs of the communities concerned. My *modus operandum* was to be respectful of the school communities. With this commitment, the study did not proceed until approval was gained from these communities. I sought to ensure the best and most responsive communications with as many members of the communities as possible.

In addition, there were formal approval requirements. I applied for and received approvals from the relevant state education department,⁹ and the James Cook University Ethics Committee. Further, I applied for and received approval to work with children under the *Commission for Children and Young People and Child Guardian Act 2000 (Qld)*. Finally, I sought and secured advice and approval from an Indigenous adviser to ensure that the project was culturally appropriate for any Indigenous participants.

Figure 1 on page 58 shows a timeline for the action phase of the project with the main school.

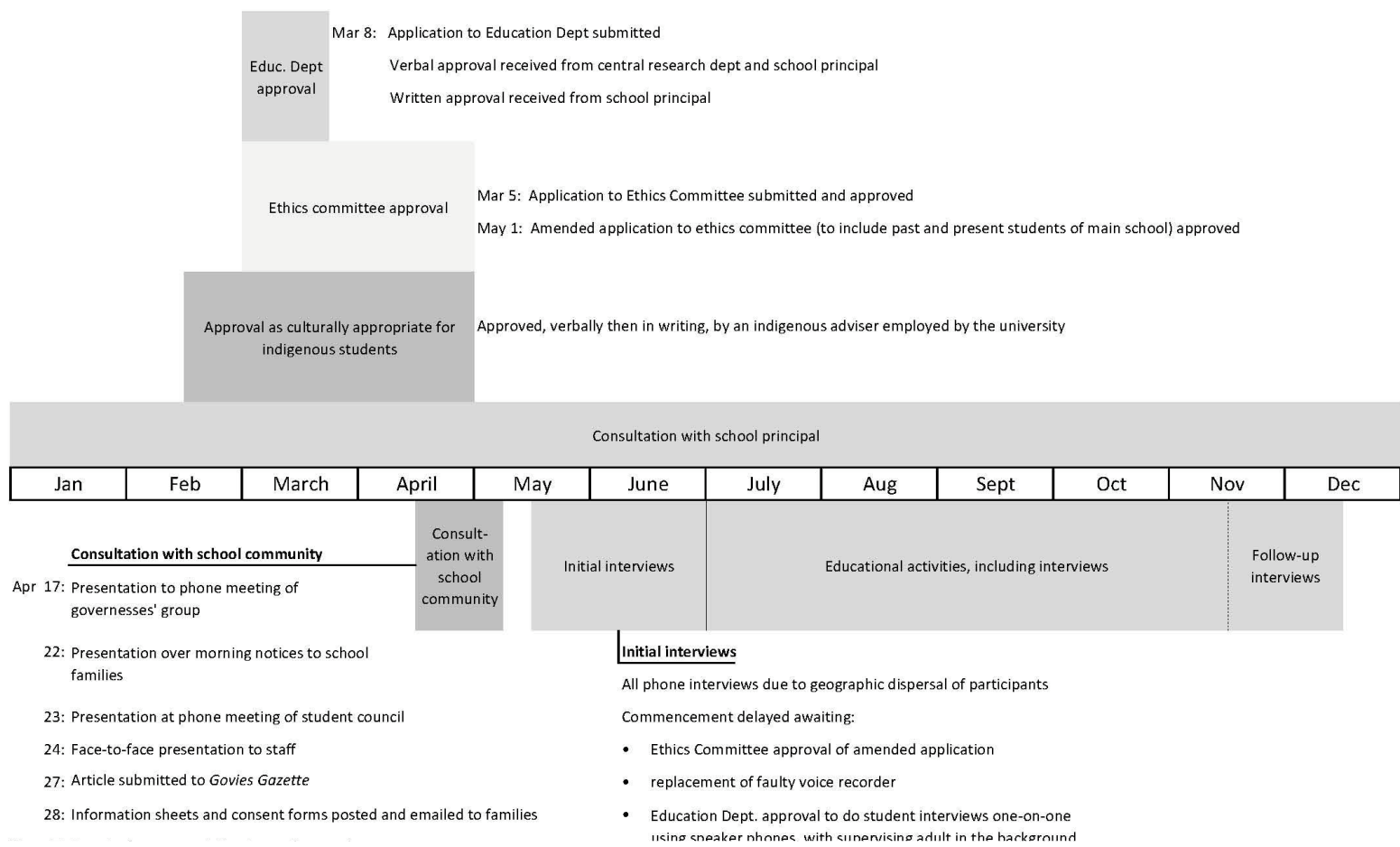
Separate formal approvals were secured for the pilot and main studies. The James Cook University Ethics Committee (approval number H2670), the education department and the school principal provided formal approval for the pilot study. Each adult participant also provided written consent. The parents provided written consent for their children. Participants also provided verbal approval when I phoned to book an interview time with them.

For the main study I applied for and secured approval from the James Cook University Ethics Committee (approval number H2899) and the education department to conduct qualitative interviews with students, parents, teachers and governesses, as well as educational activities related to the health professional careers. All potential participants were provided with an information sheet. Only those who returned signed consent forms were interviewed.

In addition to formal institutional support, informal support for the project came in a number of ways.

⁹ The name of the state has been omitted to help maintain participant confidentiality.

Figure 1: 2008 timeline for main school project



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There was, in my view, genuine support from school staff for my initial face-to-face presentation to them. Even though this presentation took place on the afternoon before a long weekend, when teachers were likely to be keen to get away, there was minimal evidence of distraction, and positive evidence of engagement. My sense of this was that the teachers viewed the concept of the project as important.

Informal support also took the form of spontaneous conversations, phone calls and emails from parents. One parent, for instance, who was unable to return the forms by email or fax, indicated in broad terms that she was so keen to participate that she was prepared to bring the forms over three hundred kilometres when she next visited the school (parent email April 2008). Another parent recognised the value of the study simply in addressing the limitations of her child's knowledge:

I would like my children to be involved so that they have a knowledge of who these people are. When one of my children had to repeat she had to see an occupational therapist and a physiotherapist and she thought they were doctors. (Parent phone call April 2008)

Another parent more explicitly related the project to her children's career aspirations and planning:

I would so dearly love something like this for Cassandra [older child, previously enrolled with School of the Air, now doing secondary school at boarding school] whose interest in a medical or associated career has varied but not wavered, as yet! Belinda, at this stage, has her sights set on [a non-health profession¹⁰], but I can see value for her from participating in this study in learning about planning a career path.

I also may glean some knowledge which may assist Cassandra. I haven't discussed this with Belinda. I thought first to ask you whether my interpretation of the benefits is correct and whether having 'interlopers' on board would hinder your study? (Parent email April 2008)

There was a sense that this mother believed the project may have a number of benefits for her family. For example, she thought the project may provide general and specific career guidance for her children. As a parent who left school after Year 10, she also thought the project would provide insights on how she could support her children's aspirations to tertiary education. While she recognised that this might stretch the project

¹⁰ This student's career aspiration has been de-identified to preserve the anonymity of the family.

beyond its intended boundaries, she strongly hoped, as indicated by her use of the word 'love', that it could accommodate their needs.

Another parent also began with a general expression of support for the project: 'I am so grateful that you are undertaking something of this magnitude and offering us the opportunity to participate' (parent email April 2008).

Like Cassandra and Belinda's mother, she also related this directly to her own children's career development needs and her own need to better support them. She also placed these needs into the context in which they lived, acknowledging a shortage of information about these careers but at the same time a desperate need to fill these positions in the community:

It is an issue that I have been anxious about for several years as Hamish showed an inclination towards a medical calling—but I didn't know where or how to really provide him with any guidance on this, other than to point out and discuss our visits to a GP [general practitioner] or the RFDS [Royal Flying Doctor Service]. He began to lose interest in that direction, and I wholeheartedly feel that it is due to a lack of information about various medical professions and what they entail that I could find, probably mostly a downfall on my part for not trying more diligently to access something. Hamish is still listing medicine as a possible career choice, but it is now below Paleontology (I know, I know, the world needs another dinosaur man like a hole in the head—and we are crying out for all types of medical people out here in rural areas). As you said, it is difficult for a child to know what they are passionate about as a career, but some children do have a focus from an early age and by providing them with information and examples perhaps we can assist them in being confident in those choices. After all a child is very unlikely to decide they want to work towards becoming an accountant (or any profession) at 16 if they have no idea what an accountant does and there are 1000s of jobs out there that we don't know exist. I would be extremely interested in participating in this project if I am able and I think that Hamish, Ben, and Anthony would appreciate the opportunity as well—Hamish is still in primary school by the way—he is grade 7—so that might make a difference to whether or not he is allowed to participate—I believe you mentioned that it was aimed at primary school children. (Parent email April 2008)

Who was recruited

As noted already, for both the pilot and main studies, I recruited predominantly primary school students living in rural and remote Australia and studying by distance education, their parents and their teachers, including governesses. I recruited from rural

and remote areas because, as the literature shows, children from these areas are the key to improving the supply of health professionals for these areas. Of all those recruited to health professions, those recruited from rural and remote communities are the ones most likely to return to, and remain in, these communities (AMWAC, 2005a; Hawthorne & Hamilton, 2010; Hensel et al., 2007; Quinlivan et al., 2010; Strasser, 1992; Wilkinson et al., 2000).

I recruited children from this age group partly because, as I explained in Chapter 2, there is general agreement among career theorists that career development begins from a very early age (Gottfredson, 2004; Helwig, 2001; McMahon et al., 2001; Schulthesiss et al., 2005; Watson & McMahon, 2005), and this appears to be the ideal time to start exploring and informing students about careers. A second reason for recruiting from this age group is the need for long-term planning to overcome some of the practical difficulties these families face when their children enter tertiary education. Finally, by the time these students are in secondary school they have generally moved away from their families and rural areas to boarding school, and most boarding schools are in cities.

At the request of some parents and teachers I did also recruit a small number of secondary student participants. As an example of these requests, one parent asked:

When we receive the information sheets and consent forms can we share these with children who are not in our school, so they can be part of this too? (Parent request over morning notices April 2008)

Another asked: 'Children who are past students of School of the Air, but are now at boarding school, can they participate too?' (parent request over morning notices April 2008).

As a result of these and similar requests and subsequent feedback, including a request from the principal, the original focus of the project was extended from primary distance education students only to include their siblings who were past and present students of this school.

I also recruited parents, teachers and governesses. In general terms, parents (McMahon et al., 2001) and teachers are known to influence students' career choices (Alloway et al., 2004; Hartung et al., 2005; Khasawneh, 2010; McMahon & Rixon, 2007; Vondracek, 2001; Watson & McMahon, 2005). Appreciating the significance of the parents in this study means understanding the dynamics of their children's lives. These students have a close association with their parents during their primary years when they are educated at home on their properties, often taught by their mother. In contrast, their parents have relatively little direct involvement with their secondary education, as most

students relocate to a secondary school hundreds of kilometres from home, and live as boarders at their school, in a hostel or at a private residence. Thus two further reasons for beginning career education for this group of students during the primary school years are:

- to include their parents who, as mentioned, are important influencers of final career choice
- to allow students to consider careers and possibly make career choices while they are living in their rural and remote settings.

For these students, a career choice made in secondary school would be a career choice made while attending a school in the city, often as a boarder.

Furthermore, most health careers require tertiary education. The financial, emotional, social and cultural costs for a rural student to enter and complete a university course are much greater than for a city student (Alloway et al., 2004; Cripps, 2011; Heaney, 1998). Parental support is generally even more crucial than for city students. Career information provided to these students during the primary years will also inform their parents. This allows parents to grow in their own knowledge, not only of careers but also of tertiary education, and they can better position themselves to offer enlightened and practical support to their offspring.

All parents influence their children's career choices. However, these parents possibly have greater influence than parents living in the city. They determine the breadth and depth of their children's involvement in their formal primary education on a continuing basis, because this education takes place at home. Geographic isolation means the parents also provide most of the informal education that occurs outside school hours.

Career education in regional and rural Australian schools is still developing, and is rarely part of primary school education (McMahon & Rixon, 2007). In addition, these students have few occupational role models in their everyday social worlds. Consequently much of the students' career education, particularly in their primary years, also comes from their parents. The additional costs associated with tertiary education for these students compared to students living in a university city means they are more likely to require family support to make aspirations to tertiary education a reality.

Parents were also interviewed for other reasons. For example, their dialogue painted a detailed picture of the ethnographic setting of this group of families, partly by providing demographic data and partly by their qualitative response to questions related to careers, their children, their children's schooling and occupational role models. Parents who are also home tutors spend most of every day with their children, and are likely to have an in-depth understanding of each of their children from a parent's perspective.

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I chose to work with schools of distance education, with predominantly remote student enrolments, for six main reasons.

1. The nature of enrolments in these schools is such that it includes almost exclusively children and families identified as my preferred participants—students living remotely, and thus most likely to return to the bush after any professional training.
2. Distance education school communities have not previously informed the literature exploring associations between students from rural and remote Australia and the health professions.
3. I considered that, in general, this group of students may have qualities and experiences that could be assets in the health workplace; for example, a work ethic and sense of responsibility fostered from an early age through caring experiences, although predominantly with animals.
4. In addition to the benefits of having students from rural and remote areas progressing to become health professionals in these areas, there were other possible benefits for their families. For example, a practicing health professional has a stable income not susceptible to the vagaries of the weather and market fluctuations.
5. These students share substantial aspects of their everyday life, and thus provide a relatively unified group of informants.
6. This form of schooling maximises parents' involvement, as discussed above, increasing the likelihood of parental involvement in the study's educational activities.

Contextualising the research

The pilot school and the main school had a number of features in common:

- Both were schools of distance education with predominantly geographically isolated enrolments, as opposed to home-schooling enrolments.¹¹
- Most of the students of both schools lived on grazing properties, mainly beef but also sheep, in rural and remote areas of Australia.
- Both schools used the same set curriculum materials for their students.

The schools differed in their geographical locations and in the organisation of their telephone lessons and provision of face-to-face days. The main school community is described below, but there are many parallels with the pilot school.

¹¹ 'Home-schooling' is used here to refer to students who reside in a town or city but study their compulsory education curriculum at home rather than attend a conventional school.

The distance education community

Families enrolled with the main school were spread over an area greater than half a million square kilometres in outback Australia. Students enrolled at the school came from 115 families, mostly involved in the beef industry, generally as employees on grazing properties, or as graziers.¹²

During the 10 years prior to the study there had been an increase in mining activity in some areas which had markedly improved employment in those areas, but had also made it more difficult for properties to recruit and retain staff due to the higher financial rewards offered by the mining companies.

One thing all the families on the properties had in common was distance. Two effects of distance most directly relevant to this study were access to schooling, and access to health care. The families lived too far from a conventional school for the children to be able to attend every day. As a result, the children derived their formal education either by learning through distance education or by boarding away from home and attending a conventional school. At the primary school level most families chose to use distance education—School of the Air. This affects how the family takes in the schooling (e.g. how the students learn, who at home is responsible for being their tutor, where on the property the schooling occurs, how the schooling fits in with family/property life and vice versa), and how the school delivers the education. When the students reach high school most leave the district for boarding school.

The second direct effect of distance relevant to this study is access to health care; in particular, access to health professionals. These families have reduced exposure to health professionals: first because they live a long way from even their closest town, and second because in general there is a shortage of health professionals in these towns. This also means that these families have limited access to health professional role models.

Distance has other effects as well. For example, it means geographical isolation. For the children, this means that they see and experience a lot of property life but little of things like playing with the other children in their class. So on the one hand these children often learn station life skills—such as managing animals, driving vehicles, riding motor bikes, mustering, and the pleasures of rural life—from an early age, but on the other hand they only see some of their classmates, at most, twice a year. They don't have the coincidental exposure to a range of career role models that children living in the city have in their lives. This means that the input from their school—phone lessons, mail

¹² 'Grazier' is used to refer to an owner or part-owner of a large property on which beef cattle or sheep are raised (Moore, 2002).

bags, electronic communication, phone calls, printed material, set curriculum papers—is from an outside world. This input offers an important opportunity to receive information and an education about the outside world.

Geographical isolation also means that distances in the order of hundreds of kilometres have to be routinely travelled to attend to business, personal and social appointments, as well as medical appointments and school events that people in town may take for granted. It even affects how, when and where food is purchased and stored for the family. There is no possibility of ‘popping down to the shop’. Distance affects how the families live, work and learn, and how they see their world and the world outside the boundary fence of their property.

Another feature of living that these families share is the influence of the market, changing government legislation, and the weather; in particular, rainfall. A good season which produces financial rewards for hard work is a joy which lies somewhere between a flood—which washes down fences, drowns stock, floods houses and cuts roads—and a drought—which starves stock, and increases workloads and expenses because of the need to hand-feed animals. Most of the families in this school community were in drought at the time of the study. The year after the action phase of the study the district was flooded.

Most families who participated in this study owned or managed a property, working as a team to care for the animals, the environment, the people and the finances. Other families, with occupations such as fencing, mustering or yard-building contracting, were fewer in number, and generally moved from one property to another with their work. Although there is a stereotypical view of country life as a quiet, slow-paced lifestyle, most of these parents were busy, with wide-ranging responsibilities. Of relevance to this study is the fact that where the mother is home tutor she must fit in this additional five-day full-time job each week during the school term while also working on the property. ‘Home tutor’ is the name given to the person, usually the children’s mother or a governess, who teaches the children on the property.

Parents in the city have different challenges. Those who know the struggle that can occur between parent and child to get homework completed will understand the challenges involved for a parent, usually a mother, on a remote cattle station trying to teach her children, not just supervise their homework.

Governesses

Some families had a governess—a ‘govie’—to teach the children on the property. These children followed the same curriculum materials for their year level as the children

whose mother was the home tutor; that is, the structure of the program for the children was the same. In general the families paid the governess's wages, although some families employed by larger agricultural companies were provided with a governess as part of their employment package.

No formal training was required to be a governess. In practice, most had no formal teaching or governessing training. No governessing course was available in the state, although an attempt to get such a course off the ground had been made in one centre. Most of the governesses working for families at the main school had only just completed school themselves. Each year there were also one or two governesses who had completed teacher training and were using the governessing role as a means of gaining employment and teaching experience until they obtained a class teaching position. One governess was doing her teacher training part-time externally while she did her governessing. Overall, only a small number of the governesses had either teacher training or previous governessing experience.

Most of these governesses were young women, and they were from many areas of Australia, predominantly from other states. Their backgrounds reflected both rural and metropolitan living. They became aware of the position by a variety of means, mostly through the governessaustralia.com.au website, and less frequently by word of mouth or from 'positions vacant' advertisements in newspapers with a country focus, such as *The Land*.

The length of time governesses stayed with a family varied greatly. There were stories of those who had lasted one night, or a week. The shock of the isolation, an unbearable longing for family and friends and home, and a stark, intolerable mismatch between the governess's anticipatory perception of governessing and reality, were reasons cited for unexpectedly short stays. Some long-term members of this widely dispersed community attributed short-term stays to a romanticised expectation of rural and remote life, an expectation that was reinforced by glossy photographs in magazines and television shows such as *Macleod's daughters* but not supported by reality. In contrast, occasionally a governess stayed with the same family for years. Also, a couple of the governesses had worked at a few different properties and for different families over a period of time.

The role of the governesses varied. Some focused on teaching the children, others also attended to the care of the children out of school hours, some occasionally did other jobs on the property when needed, including cooking for the men, mustering and cleaning. Even within the school room there was a variation of roles. For example, some

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governesses assumed complete responsibility for the schooling of the students, including listening to morning notices, completing forms and having parents sign, organising library books and supervising extracurricular activities such as Scouts. In these cases the governess was much like a teacher, albeit with a smaller number of pupils than a classroom teacher would have. On other properties, for example when there were three or more students or a student with learning difficulties, the governess's role might have been to support the mother who was the principal home tutor. In these cases the governess's role was more like that of a teacher's aide.

The school ran a 'govies' group' to provide a support network for these mostly young, geographically dispersed and often lonely people living a long distance from their own families and dislocated from their previous social networks. The group met once a fortnight by phone link-up. These meetings provided a forum to talk over issues that had occurred during the previous two weeks. Sometimes the group meetings had guest speakers who provided education and support to the govies as required. Guest speakers included a social worker and the school information technology support teacher, who helped to familiarise the governesses with the school internet Blackboard site and its uses.

Although the governess's life as I have described it may sound less than cheerful, sometimes two governesses worked on adjoining stations and were able to link up socially. More often, however, governessing was challenging and frequently short-term, with a resultant negative effect on the continuity of the children's education.

The school routine and calendar

The daily routine for the whole school started with notices. Families phoned in to the school at 8 am each weekday to listen to announcements read out from the school base by the principal or deputy principal. This took place in a manner similar to school assembly in conventional schools, with the addition of the home tutors. At the end there was an opportunity for questions and feedback from families. Attendance figures for notices were highest on Mondays, progressively decreasing to be lowest on Fridays.

Students had one or two half-hour telephone lessons—air lessons—with their teacher and widely dispersed classmates each day. Each class was limited to between six and ten students to allow each student to actively participate during the lesson. For the rest of a typical school day, the students worked through the set curriculum materials with their home tutor.

Students also had the option of joining some extracurricular activities that were conducted over the telephone during the week. For example, 'Scouts of the air' had been running for 30 years.

At the home level there were various factors that shaped attendance and levels of engagement. For example, attendances at air lessons tended to drop off after lunch. Because of distance, the whole school assembled face-to-face only twice a year. Each year each family also had the option of attending five additional school gatherings with other School of the Air families in their immediate district.

Communication between the school and its families

There were four main avenues of communication between the school staff and the families:

- telephone
- electronic
- traditional mail
- infrequent face-to-face gatherings.

The school's telephone system was used for group telephone connections such as the air lessons. In addition, there were individual telephone calls between members of the school staff and families. Electronic communication, especially email, was growing in use. At the time of the study communication using the school website on Blackboard was not popular with families for a number of reasons, including the speed and cost of internet available to them. At best, families living on properties would expect to have a traditional mail service twice a week. During the wet season, however, communication using traditional mail could take several weeks. Finally, there were infrequent face-to-face school gatherings. These avenues of communication were the mixed media by which the school delivered the curriculum. For example, the set curriculum materials arrived by traditional post to the families.

Curriculum

According to Lovat and Smith (1995), curriculum is the structured learning that occurs in a school. These authors reported that while some see curriculum as covering what normally occurs in a classroom, such as lesson plans, programs and tests, others see it in a broader sense as including any learning experience, whether academic or not, involving every activity that takes place in and around the school.

The set primary curriculum distance education materials

A significant part of these students' learning was derived from the state's set primary curriculum distance education materials. These are the papers and the resources (books, audiotapes, videotapes, etc.) which students studying distance education work through. All students of the same year level work through the same papers. These materials are divided into *units* that have language and mathematics components. Each unit has a theme, and is designed to be worked through over two weeks (except for the Year 7 language units, which are each of three weeks duration). There are 16 units in a school year. The discrepancy between the number of weeks in a school year and the number of weeks required to complete the 16 units allows for days allocated to other activities, such as state-wide testing, local agricultural shows, face-to-face school events, and family obligations, including mustering. With technological advances, these papers were slowly becoming available on CD and over the internet. However, most of the families at this school were determined to maintain paper delivery because of the unreliability of their internet connection, as well as the financial and practical costs of having each of their children working on a computer all day.

For Years 1 through to 3 each unit of the curriculum materials consists of a *mathematics home tutor guide*, *mathematics activity sheets*, *mathematics child's book*, *LAC* (language across the curriculum) *home tutor guide*, *LAC activity sheets*, *LAC activity book* and *handwriting book*. In addition there is a *resource pack* for each unit which usually contains books, audiotapes and, sometimes, brochures and videotapes.

For Years 4 through to 7, the materials for each unit consist of a *mathematics home tutor guide*, *mathematics student guide* or *instruction paper*, *mathematics assignment book*, *LAC home tutor guide*, *LAC student guide* and/or *instruction paper*, *LAC assignment book* and *resource pack*.

Students in Years 5 to 7 also studied a language other than English. Additional booklets were sent to students for this.

The place of the set curriculum materials in the study

The set curriculum materials were important to this study for several reasons.

First, these curriculum papers are the same for all remote students in the state, and are very much the skeleton and most of the muscle of their education. In contrast, the content of the telephone lessons the students have with their teachers, the extra snippets of information gained in each bush schoolroom, and the other activities provided by each

school (both over the telephone and on face-to-face occasions) vary tremendously between teachers, families and schools.

Second, these curriculum materials are widely used. The same curriculum papers and resource packs are read by all students in the same year level, and by home tutors and distance education teachers throughout the state. Thus the papers are a common ground for these students and all those who guide their education and career aspirations.

According to Lovat (2001):

Any agreed curriculum is a repository of the ideas and assumptions of a social group about what is important to be learned, what should be passed on to the next generation, and about where true knowledge resides. It is a symbol of the beliefs and values of that group. It follows then that the dominant agreed upon curriculum to be found in the education system of any society at any given time provides a snapshot of what is or was going on in that society at that time. (pp.88–9)

The rural health professional shortage is a major problem facing rural and remote Australia. Thus it is of interest to this study to know if the curriculum papers reflect any reference to the health professional shortage.

Finally, the curriculum papers are a link between these children and the outside world. We know these students are geographically isolated and that it is likely, in general, that they have little exposure to the health professional careers. It is also known that some have the potential to go on to become rural health professionals. This study seeks to discover what is already placed in the set curriculum materials to make up for the shortfall of career information about the health professions in their environment.

Participants

Pilot study participants

Once permission to proceed had been obtained, the pilot school was asked to invite the following to participate in the study:

- two students from each of Years 4, 5, 6 and 7
- two parents from separate families
- two governesses, each with at least 12 months' experience
- two teachers, each with at least 12 months' distance education experience.

These potential participants were sent information sheets and consent forms. Consent forms from two teachers, two parents, one governess and six students were returned to the school and then forwarded to me in one batch. After this, each participant

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was phoned to discuss the purpose of the interview and to organise a suitable time to conduct it. None of the students were from the same family. One student could not be contacted by phone for two months. The pilot study data therefore comes from interviews with the participants detailed in Table 1.

Table 1: Pilot study participants

Participant	Male	Female
Year 4	1	–
Year 5	1	1
Year 6	1	–
Year 7	1	–
parents		2
teachers	1	1
governesses	–	1
TOTAL	5	5

All participants had at least four years' experience with distance education, except for one student and one teacher who had just over two and three years' experience respectively.

See Appendix A for the outline of the semi-structured interview format for the pilot study.

Main study participants

The main study invited all students, parents, teachers and governesses of the second school of distance education to participate in qualitative interviews and educational activities related to the health professions. The information in this thesis focuses on data collected from 21 students (18 primary, three secondary), eight teachers, 10 parents, one governess, one parent/governess and one parent/teacher, all of whom also provided written consent to participate in the initial and follow-up interviews in addition to participating in the educational activities (see Table 2). Consent forms were also received from an additional student, teacher and parent who were not included because they left the school before the action phase of the project. Members of the school community, not just those who volunteered to be interviewed, participated in the educational activities.

Table 2: Main study participants

Participant	Male	Female
prep	2	–
Year 1	–	1
Year 2	2	3
Year 3	–	2
Year 4	1	–
Year 5	1	2
Year 6	1	1
Year 7	–	1
Year 7 boarder (past student)*	1	–
secondary	–	1
secondary boarders (past students)†	–	2
parents (mothers)‡	–	10
principal	1	–
teachers	–	7
governesses	–	1
parent/governess**	–	1
parent/teacher††	–	1
TOTAL	9	33

* Year 7 boarder (past student): Pupil of School of the Air (SOTA) until 2008, at boarding school at time of study. Family requested participation.

† Secondary boarders (past students): Past SOTA pupils, at boarding school at time of study. Siblings still with SOTA, family requested participation.

‡ Parents included president of the Parents' and Citizens' Association.

** Parent/governess:¹³ Mother employed as home tutor for another family on company property, and was also home tutor for her own child.

†† Parent/teacher:¹² Parent living in the town of the main school base; had past experience of teaching distance education (only parent not on a property).

Fourteen families were involved in the study—10 were employed on properties (e.g. company properties), three worked on their family's property, one resided in town (this information is derived partly from the interviews and partly from my living and working

13 The parent/governess and parent/teacher are grouped with the other parents in subsequent discussions. Thus 12 parents from the main school contributed to the data of this research.

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in the area). Indigenous and non-Indigenous participants were not distinguished from each other.

The broad aims of the project were to contribute to alleviating the severe chronic shortage of health professionals in rural and remote Australia and to widen the career opportunities for students living in these areas for the common good of rural and remote communities. The focus of the study was on rurality, not cultural background, as a defining feature of participants' lives. All members of the school community, Indigenous and non-Indigenous, were welcomed to participate. As a senior health worker from a remote Indigenous corporation interviewed on ABC radio remarked, 'Whether you are black, white or brindle out there it is about closing the gap' (Gribbin, 2010).

Twenty-one students (eight male and 13 female) provided data for the main study by participating in both the initial and follow-up qualitative interviews (see Table 2). Parents provided written consent for 22 students to participate in the interviews. One prep student left the school shortly after the initial interviews; his data has not been included because this study involved mapping shifts in knowledge, perception and aspirations. Three students (one Year 7, one Year 9 and one Year 11) were at boarding school at the time of the study. They had previously been distance education students for at least seven years. One secondary student enrolled at the main school volunteered to participate in the interviews.

Nine members of the teaching staff (eight female and one male) volunteered to be interviewed. One of these volunteers left the school prior to the interviews so she was not included in the final list of eight teacher participants. The eight teacher volunteers represented just under one-third of the total teaching staff employed at the school. Male teachers were under-represented—there were six male teachers at the school at the time, but only one volunteered to be interviewed (see Table 3). The male teacher volunteer was also the school principal at the time of the study. The teachers averaged 14.4 years of teaching experience (range 0.5 years to 30 years), and averaged almost seven years of experience teaching distance education (range 0.5 years to 18 years). The teacher with only half a year of graduate teaching experience was included in the study given that, before graduation, her third teaching practicum was also with this school.

In general, these teachers had teaching experience over a range of year levels (prep to Year 10) at the school (see Table 3). The exception to this was the new teacher, who had only experienced prep and Year 6 teaching, and one other teacher who only had 18 months' experience teaching distance education to Years 8, 9 and 10. One of the teaching staff interviewed was a reading teacher's aide who had been with the school for over a

decade and was heavily engaged in direct teaching and communication with the students. Another teacher taught special needs students from prep to Year 9 in the year of the study, but had previously been involved in the whole school community with experience as the teacher librarian and as a secondary teacher, and had extracurricular involvement.

Table 3: Breadth of participating teachers' teaching experience

Teacher	Sex	Total years of teaching	Years of teaching distance education	Year levels taught (distance education)*
Beth Innings	F	3	1.5	all [†]
Bree Norton	F	15	11	All
Ester Campbell	F	11	11	All
Karen Neal	F	30	5	prep, 2
Louise Gordon	F	30	7	prep, 9
Mary Gareth	F	0.5	0.5	prep, 6
Nicky Sims	F	5	1.5	8, 9, 10
Ugen Neeves	M	26	18	All

* Refers to the year levels that were being taught, or had been taught, with distance education at the time of the study

[†] All = prep through to Year 10

The school maintained an interest in past students and families and actively encouraged them to visit the school, either at the school base or at a face-to-face day held in their area. The teachers, especially the long-term teachers, had an ongoing knowledge of what many of their past students were doing. One teacher with a broad, long-term insight into the career journeys of past students was the principal, who had been with the school for almost two decades.

Of the parents who participated in this project's educational activities, 13 also gave their written consent to participating in interviews before (initial interviews) and after (follow-up interviews) the activities. One parent left the school shortly after the initial interviews. Data from this parent are not included because the project was interested in mapping change. Therefore, 12 parents provided information for this study. All the parents interviewed were mothers, consistent with health and education being viewed by rural men as indoor professions and existing more comfortably within the traditional space of women (Durey et al., 2001; Durey et al., 2003). Eight of these parents were the

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sole home tutor for their children, while four shared this role with a governess at the time of the study. One of the parents was employed as the governess on the company property on which she lived. As the governess, she taught her own child and also the station manager's children. As both a parent and a governess, this participant was classified in the parent list.

Most of the parents lived on cattle properties, at an average distance of 340 kilometres from the School of the Air base, and were either cattle station managers or cattle station owners (see Table 4). Two of the parents who were cattle station managers/owners also did part-time work as health professionals. There were only two parents who were not cattle station managers or owners. The first was the parent governess referred to above. The second had different circumstances from the other parents. For example, she lived in town, not on a property. This parent has been given the pseudonym of Bernadette Lyon. Bernadette is described in more detail below.

Without exception, the properties of the station owners in this study had been held by their families for at least two generations. The cattle station managers and owners were involved with managing:

- the environment (e.g. caring for grasses, managing water)
- cattle and other animals (e.g. welfare, purchase, sale, transport)
- people (e.g. recruitment, employees' welfare, personal needs, occupational health and safety, training, interpersonal issues)
- finances.

Almost all the mothers helped outdoors (mustering, fencing and yard work), but the proportion of their time involved in outside work varied. All were also involved in cooking for their family, employees and business visitors to the property (e.g. truck drivers, stock and station agents and government workers), but again the proportion of their time that this involved varied. Because of distance many of the visitors also had to stay overnight, and it was mostly the mother's role to prepare accommodation for them. One or two mothers on large properties had the help of a station cook to prepare food for staff.

These parents provided information that helped me build detailed pictures, albeit from the perspective of adults, of the students' home, school and social environments, which, for the most part, were tightly intertwined in the one environment, within the boundary fence of the cattle property where they lived. They were able to provide detailed knowledge of both their children and the education provided to their children because many were also their children's home tutor, a role which meant they had

continuous and intimate involvement with their children and their children's education. The role of home tutor took the parents' involvement in their children's primary education to a depth not experienced by most parents of children attending conventional schools.

These parents brought to the study considerable parental experience in distance education. The average number of years each of the 12 parents had been with the school was 6.5 (see Table 4).

The willingness of parents to be involved in the study contrasts with the experience of others. For example, in Alloway et al.'s (2004) study on factors affecting student aspirations and expectations in regional Australia, one of the problems identified in conducting the interviews was the difficulty in gaining parental input into the research. Parental willingness to participate in this study is reflected throughout the project, and may attest to parent's response to an 'insider' status attributed to me as a person living the rural/remote life on a station. It also attests to the value they attributed to the study. In retrospect, given the quiet and reserved nature of many bush people and their preference for the individual approach, I would suggest that if greater numbers were required they could have been recruited by approaching parents individually on a personal level.

The parent with the least experience in distance education had been involved with the school for two years; however, she had grown up in the district and had been a distance education student herself. The parent with the most distance education experience had started as a governess with the school 24 years before the study. She had worked as a governess for three years, then had a 10-year break before starting as home tutor for her own children, which she had been doing for 11 years. So, in total, she had 14 years' experience as a home tutor on a remote cattle property. Most of the parents were the principal home tutor for their children, and had children of at least two different year levels to teach. Collectively, these parents had children in all the year levels from prep to Year 12 inclusive. Parents exchanged knowledge, information and resources throughout any school year. As a cohort, they had a close knowledge of distance education, the set curriculum materials, and what worked and what didn't work for their family educationally.

Table 4: Parent participants

Parent	Occupation *	Years family with the school	Distance to and from school (km) [†]	Year levels of school-age children [‡]
Brittany English	cattle property managers; part-time health professional	8	880	4, 6, 7
Kathy Carter	cattle property managers; part-time health professional	2	800	1
Beatrix York	cattle property managers	3	860	3
Elise Kallagher	cattle property owners	5	250	2, 5, 6, 8
Illis Torrens	cattle property managers	4	940	prep, 2
Tia Innis	cattle property managers	6	50	2, 5
Sally Orand	cattle property owners	14	800	6, 9, 11
Deane Ellis	cattle property manager	12	320	7, 10, 11
Zara Zip	cattle property managers	3	1100	prep, 2
Xavier Inglewood	cattle property owners	8	400	4, 5, 7
Bernice Nissan	governess	3	1000	2 (also teaching prep, 2)
Bernadette Lyon	teacher	10	10	3, 10, 12

* ‘Cattle property owners’ is used here to refer to parents who own the property where they work, either on their own or with others (e.g. other family members or silent partners). ‘Cattle property managers’ manage a property owned by a company or another family.

† Distance to and from school from the family’s home gives a true indication of the minimum total distance families travelled to visit the school. The trip included a portion of unsealed road in all cases except that of the one family who lived in town. Distance does not include travel within the town of the school.

‡ Year levels given are those of the participants’ children in the year of the action phase of the project. They do not indicate all the year levels of which the parents had distance education curriculum experience—in most cases, all year levels up to and including the year level of their eldest child, or Year 7 if their eldest child left distance education at the end of Year 7.

One question that may be asked is whether the parents who volunteered to be interviewed differed from the total population of parents at the school. This question remains unanswered, but it is possible that the parent volunteers do represent a biased sample who are more interested than others in guiding their children's career development, or more interested and concerned about the shortage of health professionals in rural and remote Australia. A similar question could be posed about the teachers who volunteered. However, this would not invalidate the study—what are shown are the barriers, impediments and limitations likely to apply for all the families.

One of the parents, Bernadette Lyon, had different circumstances from the other parents, which deserve special mention as these circumstances may have contributed to different perceptions. Bernadette had been a distance education teacher for many years. She had taken leave at the time of the study to be home tutor to her children at home. This parent had, therefore, many recent years of experience as a distance education teacher but only a couple of months' experience as a home tutor. Her children had previously been students of conventional schools, and returned to conventional schools subsequently. For most of the other families distance education was the only primary school education with which they were familiar for their children. Bernadette was also different from the other parents in that she lived in town, and in particular in the town of the School of the Air base, and had very different access to the main school base and to services, including education, health and internet.

Two governesses, both female, provided data for the main study. Both had more than 12 months' governessing experience. The first governess has been included with the parents because she was also a parent of a student at the school, and has been described in Table 4. The second governess had four-and-a-half years' experience governessing. Her governessing experience had included prep, Year 1, Year 2, Year 3, Year 6, Year 9 and Year 11. Her students had been both boys and girls. The second governess's responses were included with those of the teachers.

Interview design

I chose semi-structured qualitative telephone interviews to collect data for this study, for several reasons. As far as I could determine there had been no previous research in Australia exploring the health professions with students living in rural and remote areas and studying by distance education. As noted earlier in this chapter, qualitative research is particularly useful for exploring areas in which there has been no previous research (Burns, 2000; Liamputtong, 2009), and for collecting data from a participants' perspective. Qualitative research also provides a greater depth of data than,

for example, a quantitative survey. With the decision to employ qualitative methodology I designed a general interview format which I used as a scaffold around which I continued to ask probing questions, gently and politely, as needed, in response to participants' replies to the scaffold questions. A structured interview was not used because the structure would not provide the depth of data that is brought to the surface by gentle probing questions. The conversational nature of interviews was, I assumed, less onerous for participants than completing a written survey.

The conversational nature of the interviews also made it possible to weave didactic but interactive education about health professions into the interviews, which I describe in more detail on pages 82-3. Thus I incorporated an action component into the initial interviews to start the journey to knowledge about the health professional careers.

The conversational nature of the qualitative interview also laid the foundations for rapport between participant and researcher.

Members of the school community were dispersed over a geographical area greater than 500,000 square kilometres; therefore, by necessity, the interviews were conducted over the telephone. With the permission of the participants, interviews were audiotaped and then transcribed verbatim.

The interview transcripts were analysed for emergent themes. I did not anticipate that the students would be able to say with accuracy what they intended to do with their lives in 10 or 20 years' time. However, I believe they were able to convey how they understood the world, in reference to careers in general and the health professions in particular. I also believe they were able to talk about what they valued. To be more specific, the study looked carefully at the meaning and values these students attached to health professional careers.

The main school study

For both the initial and follow-up interviews, I designed three separate semi-structured interview formats—one for the students, one for the teachers and one for the parents—each with research and educational components (see Appendix B). Although these interview formats were separate, there was considerable overlap in topics. I was interested in establishing rapport early in all the interviews to allow the participants to feel comfortable and to speak freely. The governess who was also a parent was interviewed using the parent interview format. The other governess was interviewed using the teacher interview format, because she had a teaching role on the

property. The initial interview took around one hour, while the follow-up interview took around 25 minutes.

Initial interviews

Students. I divided the initial interviews with students into three sections, which I labelled as *demographic*, *general career* and *health professional careers*.

In the demographic section I was interested in:

- the grade the students were in
- how long they had been with distance education
- how far they were from the School of the Air base
- what animals were on their property
- what they did outside school hours
- other aspects of their life on the property.

In the general career section I was interested in:

- the students' perception of their parents' jobs
- how long the students intended to continue with school
- how they thought their school work might help them in their adult life
- what job they might like to do in their adult life
- what had made them interested in the kinds of jobs they nominated
- their perception of what their parents would like them to do for a job
- any career information they had received.

Finally, in the health professional careers section I was interested in:

- the students' knowledge and perception of the health professions
- their aspirations towards the health professions
- their perception of their local hospital and the Royal Flying Doctor Service
- their ideas on ways to inform their school community about health professional careers.

Parents. The initial interviews with the parents were also divided into three sections which I similarly labelled *demographic*, *general career* and *health professional career*.

In the demographic section I asked the parents questions about their family, their work and their association with School of the Air. For example, a mental image of the parents' careers was created by asking the parent: 'How would you explain to outsiders what you and your spouse do as occupations? What is your job?' Because of the role these parents have in shaping their children's career aspirations during the primary years, I was interested in their perceptions.

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In the general careers section I asked parents questions about:

- their perception of their children's career aspirations
- their perception of what their children were likely to do for jobs in their adult life
- what they would like their children to do for a career (if they were given a magic wand)
- where they thought their children obtained their career information.

In the health professional career section I asked about:

- their knowledge of the health professions
- their perception of student interest in the health professions
- their suggestions to inform students at School of the Air about the health professions
- their thoughts on the health professional shortage
- their perception of the local hospital and the Royal Flying Doctor Service.

Teachers. The initial interviews with the teachers were also divided into three sections labelled *demographic*, *general career* and *health professional career*.

The demographic section focused on their general teaching experience and their School of the Air teaching experience.

The general career section focused on:

- their perceptions of the students' career aspirations
- the students' likely career destinations
- where the students at their school obtained their career information from.

The final health professional career section had the same question outline as this section in the parents' interview.

Follow-up interviews

The follow-up interviews with the students, teachers and parents reflected on the health professional educational activities that had been provided as part of the study after the initial interviews.

Teachers and parents. The follow-up interviews with teachers and parents asked them:

- what they perceived each group (students, parents and teachers) gained from the study's health professional educational activities
- their perception of whether the educational activities had any influence on the students' perceptions of, and interest in, the health professions
- their thoughts on how to inform these students about health professional careers in the future.

Students. The follow-up interview with students asked them about their thoughts on:

- the educational activities
- their career aspirations
- their knowledge of the health professions
- their perception of and aspirations towards the health professions.

In analyzing the data from the two schools I attached equal weight to the data from both in so far as they related to mapping students', teachers' and parents' initial factual knowledge, and attitudes since the questions were essentially the same in both and the only changes were in the interest of clarity. However, in comparing students' knowledge of and attitudes to the health professions before and after the educational activities I drew solely on data from the main school, since it was the only school involved in the activities.

Educational component of the interview questions

The interviews were multifunctional, since I was trying both to extract data and to give information. I extracted data by listening and garnering the thoughts of the participants. At another level I was using the interviews to increase participants' knowledge of health careers and related issues, such as the role and importance of school in career choices. This part of the interviews could be considered one of the educational activities. With the students, for example, I did this by first asking about their knowledge of health professional careers, then providing additional information about these careers, after which I went on to ask the students what they thought of health careers. I provided the additional information in a didactic but interactive manner to ensure I had engaged the student and pitched the information at an appropriate level. By including informative content after the questions determining students' knowledge of health careers, I aimed to inform, but not affect the information they provided in response to subsequent questions. These subsequent questions concerned their affective responses not their factual knowledge. Moreover, because this information was purely factual carefully trimmed of any value judgement it could not affect or invalidate the answers in either subsequent first round interview questions, or the answers to affective questions in the second round of interviews.

Parents and teachers were also provided with health professional career information at their interviews so they could continue the discourse about these careers in their homes

and air lessons respectively. I wanted the participants to gain something from every part of this project, including the interviews.

Educational activities

Educational activities designed to inform members of the main school about the diverse range of health professions formed the action component of the project. These activities took place during the 2008 school year. They were created in consultation with the school community, and continuously modified after reflection and additional feedback from the school community. Parents and teachers—who research has indicated have a significant influence on students' career development (Alloway et al., 2004; Hartung et al., 2005; McMahon et al., 2001; McMahon & Rixon, 2007; Vondracek, 2001; Watson & McMahon, 2005)—governesses and all students (around 160 primary and 20 secondary) were invited to participate in all activities. In other words, all members of the school community, not just those who had volunteered to be interviewed, were warmly invited to be part of the educational activities.¹⁴

In summary, these activities consisted of:

- introducing a guest speaker series
- running activity days
- providing age-appropriate library books about the health professions, the human body and illness
- creating a place on the school internet Blackboard site
- displaying brochures about health professional career university courses in the foyers of the school and two town libraries in the school catchment area (the school display also had a model hospital with model patients)
- visiting the closest Royal Flying Doctor base
- extending information through the school newsletter and magazine
- discussing the project with the Parents' and Citizens' Association (P & C) and one branch of the Isolated Children's Parents' Association (ICPA)
- as discussed above, weaving information into the initial and follow-up interviews.

The activities contributed to the research by allowing exploration of the participants' knowledge and perceptions of, and disposition towards, the health professions, in response to their growing exposure to information about these professions. Further details on the activities are provided on pages 85–9.

¹⁴ As noted in footnote 4 (page 6), the educational activities have been outlined in papers drawn from this research (Gorton, 2008a, 2009a, 2001, 2012).

The three boarding-school students who were interviewed had modified involvement in the educational activities. For example, the information about the activity days was relayed to them by their families because they could not attend these days in person. I recognised that they may not have the opportunity to see the brochures about health professional career courses on display at the foyers of the school and two town libraries during their time at home on holidays. To compensate for this they were each sent a pack with copies of all the different health professional career courses.

Resources Steps taken to distribute targeted educational resources for the project, to complement the suggestions of school community members, were not always successful. An extensive search revealed that relatively few engaging books were available that explored health careers, health, hospitals or the human body with primary- or secondary-level students. I drew this conclusion only after:

- searching bookstores, book reviews in medical journals and book catalogues
- enlisting the help of the school library staff and a teacher working for a well-known book distributor for schools
- emailing Australian paediatricians (see box below).

Email sent to all Australian paediatricians

Inspiration Required

I am doing a project which informs geographically isolated, distance education students about health careers. Most of these students have little or no opportunity to become familiar with or understand the health careers or therefore to aspire to such a career. I am looking for the title, author/s and publisher, if known, of:

- Inspirational stories (novels, short stories etc) (fiction or non-fiction) suitable for any of the ages between 4 and 17 years, about any of the health careers, the human body or hospitals etc. Was there a story or favourite text that inspired you or your children to a career in health?
- Games (card, board or electronic) that have a health career, human body or hospital theme suitable for any of the ages between 4 and 17 years.
- Websites these students could use to learn about the health careers, hospitals or the human body (not all the students have access to the internet but some do).
- Advice on where I could access such items.

Secondly if anyone has stethoscopes, white coats or other suitable items, that are no longer required, but appropriate for role play they would be appreciated.

They may be sent to: Sue Gorton, Reply Paid (postage will be charged to me). My email is:

Sue Gorton

This shortage of relevant educational resources prompted me to write a play about the health professions, with a rural setting (Gorton, 2008b). The play is a humorous tale of a jackaroo who is thrown from his horse and finds himself in unfamiliar territory—a hospital. At the hospital he encounters a wide selection of health professionals, many of whom he did not know existed. Not only would the play’s content provide information, but the process of learning the lines for performance would increase the chance that children would absorb the information. The play was printed and made available to school families.

While the school timetable did not allow the play to be performed by the students themselves, a puppet version was performed for them by members of the Uniting Church.

Setting up a display of brochures on a wide variety of health professional career courses in the foyers of the school and two town libraries within the catchment area of the school was one of the planned actions. I tried to source these brochures at a time when our internet was not working. The unexpected hurdles I encountered gave me an insight into the difficulties faced by parents and their students wishing to make course inquiries without internet access. These hurdles included being passed from one telephone extension to another and leaving (often unanswered) messages on answering machines, and a seeming reluctance to provide information over the telephone or to send out brochures. My attempts to locate resources to promote the health professionals careers reminded me of the study referred to on page 39, in which fewer than half of the careers advisers in rural areas were able to locate effective health career promotional activities (Fraser et al., 2003).

The educational activities

The action component of the project consisted of educational activities created to inform members of the main study school about the diverse range of careers in health. These activities were developed and tailored continuously on the basis of discussions with, and feedback from, the students, teachers, governesses and parents, following ideas drawn from action research (Kemmis & McTaggart, 1988). The success or failure of a program designed to expose this school community to information about the health professional careers depended, I believed, on delivering the information in a way that the

community found most useful. So drawing broadly on an action research framework, I actively sought suggestions and feedback from the school community. In the first interviews, the teachers, parents, governesses and students were asked what they thought would be good ways to present this information. For example, parents were asked:

If you were given the job of advising the education department on how to introduce and inform students at your children's school about health careers, given the distance education setting, what do you think would be good ways of telling the students about these careers?

There were four main considerations in the final general planning of the educational activities. The activities must:

- connect with a wide age spectrum (students from prep to Year 12, parents, teachers and governesses), and both genders
- be relevant to the target audience
- be accessible (for example, at the time of the study many families did not have reliable or fast internet service; using this as a means of delivering information about the health professions was not going to be successful in reaching these families)
- fit in with the school timetable for both the staff and the families.

The educational activities were diverse, to allow for the variety of ways children learn, and covered a wide range of health professional careers and related information about the human body. They included:

- an interactive guest speaker series, with a number of health professionals addressing the possibility of becoming a health professional
- informative brochures about post-school health career courses displayed in the school foyer and two town libraries
- a display of a model hospital
- a page about the project on the school website, including links to other relevant websites
- a visit to the closest Royal Flying Doctor Service base
- making available library books about the human body and the diverse range of health professional careers.

There were also face-to-face activity days for teachers, students, parents and governesses with the theme 'Our beautiful body: Love it or lose it', incorporating interactive sessions about the human body, a hospital role play, a humorous hospital puppet show, songs and dances related to the human body, and hands-on health and medical related activities.

Throughout the year verbal and written pieces educating the school community about the health professions were placed into school events. For example, as a follow-up to my initial presentation to the P & C, I was asked to do a further presentation at a P & C meeting and also a presentation at an ICPA meeting. I was also asked to write a report for the P & C. I considered these requests to be indicators of interest generated through the activities. A written piece was inserted into the school newsletter for fourth term, and I was allocated a page on the school magazine. Finally, the initial and follow-up interviews had information about careers in health woven into them.

The guest speaker series

In the *Could I become a health professional?* guest speaker series, a different health professional would speak about their career over the phone each week, from their usual workplace, to the school's isolated families. Most sessions had one speaker talking to the school. The individual speakers included a registered nurse, an occupational therapy university student, a physiotherapist, an inspirational quadriplegic farmer, a pharmacist, the (then) governor of Queensland and patron of the Queensland Royal Flying Doctor Service, a university study promotion spokesperson, and doctors from four different fields. Three sessions had more than one speaker. The first had a speech pathologist and an audiologist; the second, a nurse educator along with a school teacher and student involved in vocational education and training in health services; and the third, members of a mine rescue team.

Speakers were carefully selected to represent both genders and to maximise rapport with the families. In identifying possible guest speakers, a connection with rural Australia and the experience of growing up in the country were preferred criteria. At least three of the speakers had themselves been educated via distance education at primary school. The quadriplegic farmer was invited because I believed sessions exploring health careers required patient input. I also believed that this gentleman was inspirational in what he had achieved despite his quadriplegia. This was of relevance, given the determination required for students from rural and remote areas to become health professionals.

All the health professionals approached to be guest speakers agreed, despite their heavy workloads and even though there was no remuneration. This response most likely indicated their support for the project. The health professionals' willingness may also have reflected widespread concern about the shortage of health professionals in rural and remote Australia.

Steps were taken to maximise the educational benefits to be derived from these guest speaker sessions, some after reflection and feedback from the first sessions. For

example, it was decided that each speaker's presentation should be foreshadowed by a summary of the speaker's profession and the path taken to that profession, to be read out over morning notices and emailed to each family in the week prior to and on the morning of the session. For each session, one Year 5, 6 or 7 student was allocated to be chairperson, and another to do a formal thankyou speech.

School activity days

The main school delivered education to its students in a number of ways, including air lessons, the set curriculum papers and face-to-face events. The school was responsible for providing education to isolated families scattered over an area greater than half a million square kilometres. It arbitrarily divided this area into six districts, and provided one face-to-face activity day for each district around twice a year.

These days were usually held at a central point in the district, mostly at a small town hall or country race track. The families in the district and a selection of School of the Air teachers travelled to the site for a day together. The days were structured by the teachers with a program that included school activities and sport. The mothers catered nutritionally for the days. The children loved these days because they saw their friends and their teachers who, along with their mothers, put in a huge effort to make the days special. The main school allocated the second round of activity days for the year to this project. These days were given the title 'Our beautiful body: Love it or lose it'.

'Our beautiful body: Love it or lose it' activity days aimed to give students an opportunity to learn about the human body, as well as the health professions. The days included:

- an interactive discussion about the human skeletal and gastrointestinal systems, facilitated by props including Fragile Fred (the friendly plastic skeleton) and Legless Larry (the plastic gastrointestinal mannequin) respectively
- hospital role play
- anatomical songs and dances
- a puppet show about a jackaroo who is thrown from his horse and finds himself in hospital
- a teeth talk
- sport
- time set aside for each student to listen to their own heart with a stethoscope.

Steps were taken to assist students' visual memory of the day, to amplify the experience in the hope of creating a lasting impression. Before the students arrived, each facility was decorated with a temporary ward, anatomical charts and relevant library

books. Staff took photos of the day for the students. For example, photos of the students taken during hospital role play and with Fragile Fred and Legless Larry were popular. At the end of the day, each student was also given a personalised colourful certificate acknowledging their overall contribution to the day, and an area they excelled in. The certificates repeated some of the vocabulary that had been used during the day.

Reflecting on the collaboration and the ‘plan, act, observe, reflect’ components of action research

The action part of this project was like a gradually opening umbrella. My initial collaboration was with the principal of the main school, subsequently expanding to take in teachers, parents, governesses and students of the school. I gathered ideas for the educational activities—the actions—first from the informal verbal and emailed feedback I received in response to my presentations and written communications with each of the school groups, and then from the interviews. Initially I planned the actions with the principal, then with different members of the school community. For example, the activity days were negotiated with the principal and subsequently with the field team teachers who were appointed to organise and run the school’s face-to-face days for that year. Setting up the internet site on the school’s Blackboard was planned with the information technology staff. Similarly, a parent suggested having an orthopaedic surgeon as a guest speaker. She believed this would be a career of interest and relevance to the families because so many of the adults had, in her words, ‘buggered knees’. As a deliberate attempt to interest the boys, I chose a male orthopaedic surgeon who had spent his preschool years in the wider district and was the surgeon for a favourite football team. Another parent suggested having the mine rescue team as guest speakers, also as an attempt to interest the boys.

The next step was to ‘enact the plan and observe how it worked’ (Kemmis & McTaggart, 1988, p.77). I kept a continuous journal of the project on my laptop, entering my observations, relevant feedback from members of the school community, and my own reflections of activities. For instance, as we left each activity day I typed up community feedback, as well as my observations and reflections from that day, in the car travelling to the next location. Other feedback and reflections which came after further thought were entered at a later date. As time went on, the activities were shaped in response to these reflections in my pursuit of continuous improvement of the project for participants.

In collaboration with the school community, I used the self-reflective spirals of *plan*, *act*, *observe* and *reflect* to improve the activities. My goal was to make them the best possible for the context and point in time. For example, the guest speaker series initially

did not have a time limit, but after parents reported difficulty maintaining the concentration of younger students each session was kept to a strict 30 minutes. Enlisting the students to chair the sessions also evolved with time to maximise student engagement and to give them ownership of each session. As another example, at the end of each activity day time was set aside for formal reflection with the students, and informal reflection with the adults. On the basis of this self-reflective spiral, improvements were made to subsequent activity days.

Curriculum materials

The set distance education curriculum materials were carefully reviewed as the final source of data collection for this study. These are the core materials used to provide education to geographically isolated students via distance education. The same materials are used for all distance education students in the same year level throughout the state, and have a wide reach into the communities.

School curriculum also has an important place in teaching students about the society they live in, and their potential future place in that society. In Australian rural and remote areas, the shortage of health professionals is a major concern. The shortage of these professionals also means a shortage of role models for these careers. For all of these reasons, I thought it was important to determine what information was already in the materials about health professionals and health professional careers.

I found I needed to classify the information in the curriculum materials relevant to health professionals and health professional careers according to the nature and quantity of the information. To quantify the material, I measured each representation in pages and fractions of a page—for example, one unit of material might contain 1.2 pages of relevant information—because doing a word count of these paper-based resources was impractical. Relevant illustrations were counted along with the text. All the curriculum papers produced by the education department, such as student guides, instruction papers and activity books, were printed in a standard format that allowed comparison. The reading and text resources in each resource pack were harder to compare because they were printed in different fonts and on different sized papers. Audiotape and videotape sections containing relevant information were measured in minutes and seconds.

I also analysed the curriculum material in terms of the nature of the portrayal of health professionals. In other words I examined the material to see ‘how’ health professionals were portrayed because this could influence students’ perception of these careers. I categorized these portrayals as positive, negative or neutral. Portrayals were assessed as positive if they presented health professionals as competent, helpful,

approachable, caring, ethical or knowledgeable and they were assessed as negative if they presented them as incompetent, uncaring, unprofessional or unethical. Neutral portrayals were those that were free of any affective implication. I discuss my review of the curriculum materials in detail in Chapter 4.

I wish to stress here that this study was based on a belief that the education department is in a position to attenuate what is a health problem—the shortage of health professionals in rural and remote Australia. The curriculum papers were reviewed to examine whether health professionals and health professional careers were already represented in the school texts. The intention was not to be critical of the writers of the papers, but rather to see what material already existed that focused on health professionals.

The curriculum materials I reviewed, except for the audiotapes and videotapes, were all paper-based. The curriculum materials are continuously being updated, taking many years before the material for each year level is rolled over into the next edition, to serve current students. During the time of this study a digital version of the curriculum materials was introduced to the younger years, starting with the prep students.

Implementing the project

As discussed below, problems and limitations of a practical and of an in-principle kind impeded, but did not overshadow, the pilot and the main study.

Practical limitations, problems and delays

Many of the practical limitations, problems and delays overlapped, and were common to both the pilot and the main study. These issues included:

- the nature of mail delivery in remote areas impeding the return of consent forms
- loss of internet connections for weeks
- loss of telephone lines for days
- loss of power
- a faulty voice recorder.

My geographic isolation contributed to and exaggerated the effect of these issues. Each time I visited the university I was reminded of how much easier it must be to be an on-campus student.

Both the pilot and main school had their own practical limitations, problems and delays. At the pilot school the workload of the principal meant that months passed before he was able to read and approve the application to do the study. At the main school the library books purchased for this project did not get out to the school community as

planned due to a shortage of library staff, renovation of the library and the workload involved in the school's reading program. The only time slot available for the guest speaker series was not optimal because it was after lunch, when attendances are lower, and overlapped with other air lessons.

In-principle limitations, problems and delays

At the main school, parents' and teachers' support was evident in their suggestions that the project include children other than those in the primary target group. One set of delays followed my decision to respond to and incorporate these suggestions to widen the range of participants. This entailed the submission and processing of revised ethics and education department approval applications to include past and present pupils of the school. Commencement of the project was delayed until formal approval for these revisions was obtained.

The *Guidelines for conducting research in education school sites* (n.d.) had been revised in the time between the pilot and main study. Under the new guidelines the students could not be interviewed individually. Although it has previously been recognised that group interviews with students can improve the flow of information (Henderson, 2006), this was not the case for these students being interviewed over the telephone. Interviews were stalled while I made further contact with the education department seeking permission to interview the students individually with the proviso that a parent, or adult nominated by the parents, was able to listen in the background using the speaker telephone the students used for their telephone lessons with the school. This was approved. I believed any risk of the adult's presence influencing the interview responses was minimised by the students being accustomed to this set-up—most of them participate in their air lessons with an adult listening in the background, knowing that responses are to be their own. I had also informed participants that I needed to know what the students really thought and not what they thought an adult would like them to say or what their supervising adult thought.

Summary

This project adopted a multidimensional approach with a pilot and main study at separate schools of distance education in rural and remote Australia. Qualitative interviews and broadly based action research creating a suite of educational activities about the health professions were the backbone around which the project was constructed. This approach generated a substantial body of research data—ranging from parent, teacher and student interview data, informal communications and observations to

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curriculum material records—from which to explore the knowledge, perceptions and aspirations students held about the health professional careers, and factors influencing these

Chapter 4: Sources for learning about careers

Career development theorists highlight the importance of student knowledge of available careers as a basis for enabling students to even imagine those careers as possibilities for themselves. This chapter explores the sources for learning that students growing up in rural and remote Australia might encounter as a basis for including health professions among the careers they might consider pursuing. It also notes other sources for their learning which might fit them for careers in the health professions in rural and remote settings. First, it examines what sources the schools provide for students to learn about careers, especially health careers, which may shape their knowledge of and interest in these careers. Second, it explores the ways students' everyday lives might produce knowledge and learning opportunities of relevance to their choice of career. Finally, it considers other possible sources for learning that might increase the likelihood of their including health professions among the possibilities that inform the gradual development of their career choices and plans.

I begin this chapter by analysing the key sources for learning about health professional careers within the set distance education curriculum materials. I analyse these materials first because of the central role they play in these students' education. Then I review students' exposure to sources for learning about health professional careers from other school events, such as air lessons and face-to-face days. A discussion about the knowledge students might acquire about health careers outside of school hours follows. Next I reflect on other sources of learning that generate knowledge, competencies and attitudes these students might have which could be assets in the work setting and, in particular, in the health industry. Because it is not possible to capture every possible source for learning about health professional careers available to students in one chapter, the focus of this chapter is on the critical sources.

I then examine participants' suggestions for delivering health career education to the main school community as new sources for learning about these careers. Here I also outline briefly how some of these suggestions were used as the foundations for the educational activities of this project. Finally, I review participants' reflections on the project's sources for learning.

In distance education, the key sources forming the basis for the learning that informs the gradual development of students' career choices are the curricular support materials for the *key learning areas* (KLAs), in particular mathematics and *language across the curriculum* (LAC). A careful analysis of these materials shows that they provide almost no information directly or explicitly about any careers, including the health professions,

but that they do include a range of representations of health professionals and the bodies on which they work. Some of these representations of health professionals are intimately associated with representations of hospitals, diseases or first aid. While such representations are scattered across the curriculum materials, they constitute a minute proportion of these materials. Moreover, they represent very few health professionals apart from doctors and nurses, include a number of negative portrayals, and provide minimal information relevant to health professional career choices. None of the information is presented to students in a manner to suggest to them that they could consider these careers for themselves. On the basis of this analysis I argue that on balance these materials are likely to exert little or even a negative influence on students' consideration of health professional careers. Other aspects of the school program also offer few learning opportunities likely to inform health professional career choices.

Analysis of the contexts of the students' daily lives shows that they offer rich opportunities for learning about work in the pastoral industry; however, like the school, they offer few opportunities for learning about health professions. Nonetheless, the students' daily lives offer many opportunities for learning attitudes, dispositions and skills which would be of value in a range of occupations, including the health professions.

Analysis of participants' views about school as a source of career learning, and reflection on the analysis of the learning opportunities the school offers, constitute a basis from which to identify a range of possible sources for career-related learning—including health professional career learning—that are not currently provided. On the basis of this analysis I argue that in the absence of opportunities in daily life and in the existing school program, the provision of such sources of learning is crucial if schools of distance education are to play a part in addressing the shortage of health professionals in the communities they serve.

School as a source for learning

As I demonstrated in Chapter 2, there is virtually no formal career information or career education provided in Australian primary schools. An examination of the curriculum of distance education schools shows that they are no exception to this. When I analysed the sources of learning provided by the schools, the only source of information I found about the world of work, including careers that might root themselves in children's minds and slowly come to appear to be possible careers for them, is incidental information in the subjects that form the everyday school curriculum—the KLAs. In the distance education program which forms the setting for this study, the focus within these is predominantly on mathematics and LAC.

The curriculum and health professional careers

Teaching and learning within the KLAs is built around a body of resource materials. These distance education curriculum materials occupy a crucial position in the students' education. In this section I present my analysis of the distance education set curriculum materials as a source for learning about health professional careers. I lead into this section by redefining the curriculum materials and their dominant position in the students' education. I also highlight the role of teachers and parents as both consumers and mediators in relation to the curriculum materials.

I then analyse the sources for knowledge about health professionals in the curriculum materials. First I study how health professionals are portrayed, because it is not just the quantity of information available to students that could influence their perceptions of these careers, but also how this information is presented. Here I draw on examples from the materials to illustrate the three types of portrayal—positive, neutral and negative. Portrayals are assessed as positive if they present health professionals as competent, helpful, approachable, caring, ethical or knowledgeable and they are assessed as negative if they present them as incompetent, uncaring, unprofessional or unethical. Neutral portrayals are those that are free of any affective implication.

After that I examine the negative portrayals at a deeper level to point out the potentially harmful influence these sources for knowledge could have on perceptions of health professionals and hospitals. Then I analyse the quantity of information about health professionals and the human body in the materials.

Redefining the set curriculum materials and their place in the distance education setting. As discussed in Chapter 3, the set distance education curriculum materials were a crucial source of learning in the distance education setting. The papers and resource packs that made up the set distance education curriculum materials were provided as the prescribed resources for all students throughout the state who learn through the education department's distance education system. These materials provide a link between these geographically isolated students and the outside world, and were a key source of information and views. The same materials were also intended to be read by teachers and by the home tutors¹⁵ guiding these students in their education. In addition, many teachers used the set curriculum materials as the scaffolding upon which they

15 As already noted, a home tutor is the adult, either a parent or a governess, who guides the children's learning in their bush schoolroom.

planned their air lessons.¹⁶ These curriculum materials seemed to be central to the school's programs. They were thus an important potential source for knowledge of and attitudes towards health professional careers, and well positioned to place the health professional careers within these students' consideration.

The curriculum materials for primary level students consisted predominantly of mathematics materials and LAC materials.¹⁷ For Year 1 through to Year 3 the materials for each two-week unit included a mathematics home tutor guide, mathematics activity sheets, mathematics child's book, LAC home tutor guide, LAC activity sheets, LAC activity book, and handwriting book, as noted on page 66. In addition there was a separate resource pack for each two-week unit which typically contained books and audiotapes and, sometimes, brochures and videotapes.¹⁸

For Year 4 to Year 7, each unit comprised a mathematics home tutor guide, mathematics student guide or instruction paper, mathematics assignment book, LAC home tutor guide, LAC student guide and/or instruction paper, LAC assignment book and resource pack. Students had two weeks to complete each unit, except for Year 7 LAC units which they had three weeks to complete.

My analysis here focuses solely on materials provided for students as key sources for their learning. The mathematics and LAC home tutor guides were intended to be read by teachers and home tutors but not by students. For this reason these guides were not analysed.

However, it should be noted that teachers, parents and home tutors (themselves often the parents) are potential sources of career education and information, both directly through their capacity to initiate and inform a range of discussions with students, and indirectly through their mediation of the curriculum materials. Teachers have the potential to extend the learning from the curriculum materials during air lessons, at face-to-face days and during informal conversations. Similarly, parents can build on these materials in their bush schoolroom, and at home outside of school hours.

16 As noted in Chapter 1, an air lesson is the 30- to 45-minute lesson a student has each day with their teacher and six to ten widely dispersed class peers using the school telephone system to communicate.

17 Students also had the opportunity to choose a language other than English (LOTE) to study in Years 5, 6 and 7. The LOTE opportunities and materials were changing at the time of my review of the curriculum materials, and not all students studied LOTE. Therefore I chose not to analyse the LOTE material.

18 Since my review of the curriculum many audiotapes have been replaced by CDs and videotapes by DVDs, containing the same learning materials.

Portrayals of health professionals. The set curriculum materials contained two main types of information potentially related to students' capacity to become interested in health professions as careers—information about health professionals, and information about the human body. Information about health professionals included information about where they work (e.g. hospitals), what they treat (e.g. diseases), and what they do (e.g. first aid)¹⁹. It also included accounts of their characteristics, as people and as professional practitioners, that might influence students' capacity to become interested in the health professions as careers. These accounts of health professionals ranged across a spectrum from positive, through neutral to negative portrayals. The information about the human body was all value neutral.

A number of portrayals of health professionals represented them working at their job in a gentle, caring and knowledgeable manner. The following are some examples of this taken from material for Years 4, 5, and 6. Thus, for instance, in a Year 4 (unit 4) compulsory reading book *Rosina and the show* (Odgers & Stackpool, 1985), Rosina, the main character, has just had her right ankle stepped on by a horse:

The ambulance men were kind and efficient. They dissolved the crowd briskly. Then one of them supported Rosina's shoulders while the other carefully removed her gumboot and cut the leg of her jeans. Very gently, he moved her foot in a circle. Rosina bit her bottom lip, tears of shock and pain sliding down her face. Her father hovered by, with David clutched against his chest. (p.47)

The use of 'gently' and 'carefully' here, and 'reassuringly' in the following passage, to describe the officers' actions conjures up a sense of these practitioners as sympathetic and caring people. This is reinforced by the accompanying illustration, which shows Rosina sitting on the grass with her ankle being examined by one ambulance officer while the other supports her in the sitting position:

'I think it's just a bad bruise,' said the younger officer reassuringly. 'We'll take you along to the tent and put an ice-pack on it.' He turned to Mr Paul. 'I'm sure she'll be all right, but maybe you'd like to get that ankle x-rayed, just for your own peace of mind.' (pp.47-8)

In this section, it is not so much the sympathetic manner but the professional competence of the ambulance officers that is portrayed.

¹⁹ It is acknowledged that first aid is not necessarily carried out by a health professional.

Nevertheless, first aid has been included here because health professionals can perform first aid and because an interest in first aid could trigger an interest in a health professional career.

Similarly, in a Year 5 compulsory reading book, *Goose* (Carroll & Hannay, 1989), the main character, whose nickname is Goose, has an acute asthma attack:

Goose sat on a hospital bed, his arms braced by his sides, gasping like a fish landed on the beach. A woman with soft wavy hair and a soothing voice sat beside him and held a mask over his mouth and nose.

‘You’re all right now, Philip,’ said Dr Sanderson. ‘We’ll have you feeling better in no time.’ She turned and said, ‘Sister, would you get a drip ready, please?’

Dr Sanderson smiled at Goose and ruffled his hair. ‘I’m going to put a tube into your wrist so we can get some medicine into your bloodstream quickly. You’ll feel much better.’ (pp.52–3)

As in *Rosina and the show*, the health professional, in this case a doctor, is cast as caring, reassuring, methodical and diligent. Here, even more than in *Rosina and the show*, the personal characteristics are woven tightly together with the professional competence. In both cases, too, the account of the incident provides concrete images of the actual work health professionals perform as part of their practice—applying ice packs and inserting intravenous drips—as well as showing the division of labour and the responsibilities of different health professionals. Both these excerpts can be seen to provide positive portrayals of health professionals.

In many passages, however, the portrayals are highly critical of various aspects of the health practitioner’s personal attributes or professional competence. For instance, in *Onion tears* (Kidd, 1989), a compulsory reading book for Year 5 unit 1, Miss Lily, the school teacher, is in hospital when one of her students visits her home to play with her dog. Mr Newton, Miss Lily’s elderly neighbour, breaks the news of Miss Lily’s hospital admission to the student.

‘Miss Lily’s gone to the hospital. Doctor reckons she’s got to have some tests done. Them doctors are all the same. They can’t stop jabbing in their needles and cutting bits out of you. Twice I’ve been in for tests meself.’ (p.55)

Through Mr Newton, students are exposed to judgmental views on what doctors do—‘can’t stop jabbing in their needles’ and ‘cutting bits out of you’. These views are not balanced by any objective explanation for why these steps may be necessary in the diagnosis and management of patients. Mr Newton goes on to say:

‘One time they found something or other that shouldn’t have been there—and do you know what?—just as the nurse had given me this lovely custard stuff for me dinner, this silly young doctor comes in with it in a bottle. He thought I’d like to

have a look at it, he said. Well, I told him what he could do with it and not to come spoiling me dinner with bits of me body chopped up in bottles.’ (pp.55–6)

In this section, similarly, the reason why the ‘silly young doctor’ showed Mr Newton the specimen excised from him is not provided. Compare Mr Newton’s original sentence with the following, which describes the same actions in a different light: ‘To help me understand my condition, the young doctor took the time at the end of the day to show me the tissue the surgeon had excised.’

Another example is *Jodie’s journey* (Thiele, 1988), a compulsory reading book in Year 7, in which there is explicit discrediting of doctors’ knowledge when the grandmother states: ‘Doctors don’t know anything. I’ve proved that a dozen times.’ (p.35)

There were also other sections of the curriculum materials containing negative connotations about the treatments provided by health professionals, as, for example, in the following extract transcribed verbatim from an audiotape listened to by the students in Year 5 (unit 7 LAC):

We’re at the graves of some of the children who died in the early days of the Moreton Bay colony. The children in these graves were all soldiers’ children ... Each of these headstones tells a sad story, most of the children died young. William Roberts died five years and two months from an illness. William had been treated with pain killers from the hospital and it doesn’t sound like the treatment was successful. (Open Access Unit, 1999)

There were accounts which questioned the ethics and character of doctors in some sections of the curriculum materials. For instance, in the following excerpt from *Dad, Mum, the circus and me* (Steep, 1992), a story in a compulsory reading book for Year 7 (unit 5), the doctor’s behaviour can be seen as inherently unethical because of his lack of care for a living being, the dog, in preference to a non-living object, his car. This view, that the doctor’s behaviour was unethical, is strongly, if implicitly, expressed by the narrator, who makes readers feel the horror of the incident:

I lay under the sheet, the family photograph album propped against my knees ... I knew them all—there was Grandad the day he lost his teeth at the beach; here was Jigger, Dad’s blue heeler that got hit (and killed) by Doctor Benson’s new car ... and you know what he was worried about? The car ... Not Jigger, lying there in pain and dying, but his precious new car. And him a doctor. (pp.4–5)

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The doctor's behaviour in this passage is, strictly speaking, outside the context of his work; however, his identification as a doctor could lead to a blurring of his personal and professional behaviour, and extrapolation to other doctors.

Each of these excerpts displaying a judgmental view of health professionals' knowledge, skill or personal behaviour can be seen as a negative portrayal of health professionals. Such negative portrayals could have an unconstructive influence on students' attitudes to these professions, and to their imagining themselves in these professions. For a number of these negative portrayals, when a specific health professional was identified, it was a doctor. Although a full discussion of this is outside the scope of this thesis, these negative portrayals have the potential to adversely influence attitudes to health care and health professionals, as well as aspirations to a medical career.

In the following chapters I show that doctors and nurses are the only health professionals familiar to many study participants. So in this context it is possible that discrediting doctors in the school materials may be synonymous with discrediting all health professionals.

There was also a large number of references to health professionals which were simply neither positive or negative; for example, the following sentence taken from *No holiday fun for Sam* (Lambert, 1991), a compulsory reading book for students doing unit 12 of Year 4: 'For a week Sam was very ill with the measles. Dr Spencer came three times and gave him pink medicine' (p.76). This reference, unlike previous examples, puts no value loading on the doctor's actions.

The next example, taken from the Year 6 unit 9 assignment book, is an objective account of doctors and nurses preparing for an operation:

The doctors and nurses prepare themselves for surgery. They scrub their arms and hands with disinfectant. Sterile masks, caps, gowns, and gloves are worn to prevent germs being spread to the patient. (Open Access Support Centre, 1993, p.23)

While this gives slightly more detail about something doctors and nurses do in the course of their work than the sentence from *No holiday fun for Sam*, both excerpts are non-judgmental, neutral portrayals of these professionals.

Most of the references to health professionals in the mathematics units reviewed were in unit 5 of Year 5. This unit used a hospital focus around which a portion of the learning was based. The references to health professionals included text, photographs and illustrations. For example, the cover of the student guide had a large photograph of a male nurse and two school students standing in a hospital nursery. Smaller photographs of the

nurse's head and shoulders, and of hospital beds, were scattered throughout the book. Some of the mathematical problems involved health professionals; for example: 'Three doctors treat 38 patients each. How many patients do they treat altogether?' (Access Ed, 2001, p.3). These photographs and mathematical problems were also considered to be neutral portrayals.

Two of the references to health professionals were ambivalent or mixed. For example, in the Year 7 compulsory reading book *Jodie's journey*, Thiele (1988) wrote: 'There were some like Dr Klein who knew enough to fill a dozen books but who sometimes found it hard to explain things to her in simple language' (p.55).

At the beginning of the sentence Dr Klein is portrayed as a very knowledgeable person. This part of the sentence can be perceived as a positive portrayal of a health professional, since knowledge is an important quality for a doctor. However, the end of the sentence suggests that Dr Klein has poor communication skills. While clinical knowledge and skill are very important, communication skills are also essential for health professionals because poor communication can be associated with adverse patient outcomes, issues in multidisciplinary care teams (Hansen, Gurney, Morgan & Barraclough, 2011, p.56) and decreased patient satisfaction (Chen, Nash & Lokuge-Hayes, 2009). Thus the end of the sentence would seem to be a negative portrayal. Because of their small number, these mixed portrayals have been grouped with the neutral portrayals in the next section, which discusses the quantity of references to health professionals.

As a source for learning about the human body, the curriculum materials provided objective information. Most of this material was purely factual, such as illustrations of the gastrointestinal system. Sometimes the facts about the human body were woven into narrative, audiotape dialogue, songs and hands-on activities. For example, in unit 8 of Year 3 students listened to an audiotape of a conversation between two friends who have a discussion about the musculoskeletal systems. All the information about the human body in the materials reviewed appeared to be presented in this neutral manner.

Quantity of health professional and human body information in the curriculum materials. Overall the quantity of information about health professionals and the human body in the set curriculum materials used by the students was small—so small that parents and teachers perceived that the students received virtually no information from the school about the health careers. In the following paragraphs I quantify the references to health professionals and the human body, which substantiates these impressions.

Curriculum materials written by the education department. For LAC for Years 3 to 7 inclusive, the education department wrote 9801 pages²⁰ of materials for students to work through. The total number of cumulative pages with references to health professionals, first aid, diseases or hospitals in these materials was 23.1. The total number of cumulative pages with positive portrayals of health professionals within these references was 0.2, while the total number of cumulative pages with negative portrayals was 1.5, with 21.4 pages of neutral portrayals. Students worked through 12 cumulative pages about the human body in all the LAC material written by the education department for Years 3 to 7. This information is summarised in Table 5, while figures for each year level are given in Appendix C.

The home tutor had 4160 pages of LAC home tutor guides to read for Years 3 to 7, in addition to reading the students' materials.

Altogether students were expected to work through 6104 pages²¹ of mathematics for Years 3 to 7. Of these, 38.1 cumulative pages referred to health professionals, first aid, hospitals or diseases. All these were considered to be neutral portrayals, except for 0.2 cumulative pages of negative portrayals. There were no positive portrayals. There were 0.9 pages altogether referring to the human body. This information is summarised in Table 6, while figures for each year level are given in Appendix D.

The resource packs. Unlike the curriculum materials referred to previously, the books in the resource packs were not produced by the education department. Nevertheless, these books were woven into the students' lessons. For example, students might be directed to read certain pages from a novel on a particular day. The rest of the LAC lesson for that day might involve spelling, grammar and comprehension related to what the students had read. On another day students might be directed to read further pages of the novel, and so on until the book had been completed.

Altogether the books in the resource packs for Years 3 to 7 had 8098 pages. Students were not expected to read all the pages of some of the non-fiction resource books, but overall most pages were read. Of these 8098 pages, there was a total of 43.4 cumulative pages of references to health professionals, hospitals, first aid or disease. Most of these portrayals were neutral (30.2 pages), but just under a quarter were negative (9.2 pages), and only 3.9 cumulative pages contained positive portrayals. Altogether these

20 This figure is obtained by adding the totals for the instruction papers, assignment books, student guides, activity sheets and handwriting books in Table 5.

21 Calculated by adding the totals of the child's books, activity sheets, activity books and instruction paper/student guide columns of Table 6.

resource books contained 36.1 pages of information about the human body. This information is summarised in Table 7.

Table 8 shows the quantity of information in the health professional and human body categories in the audiovisual material for Years 3 to 7. The pattern of references in this material mirrored that in the curriculum papers and resource books; relatively few references, with most being neutral. The videotapes differed from the other materials in that there were more positive than negative references to health professionals. Appendix E shows the figures for each year level.

Where references occupying less than 0.1 pages were recorded, this has not been included in the totals for Tables 5, 6, 7 and 8, or the tables in Appendices C, D and E.

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Table 5: Portrayals of health professionals in printed LAC materials produced by the education department for Years 3 to 7. References to health professionals include references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row are numbers of pages.

	Year 3	Year 4	Year 5	Year 6	Year 7	Totals
Instruction papers	–	1502	–	1513	1333	4348
refs to health professionals	–	7.7	–	3.0	3.7	14.4
positive	–	0.0	–	0.0	0.2	0.2
negative	–	0.0	–	0.0	0.5	0.5
neutral	–	7.7	–	3.0	3.0	13.7
refs to human body	–	2.6	–	0.0	3.4	6.0
Activity books	861	465	554	433	307	2620
refs to health professionals	0.0	3.0	0.0	2.2	0.0	5.2
positive	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.3	0.0	0.3
neutral	0.0	3.0	0.0	1.9	0.0	4.9
refs to human body	6.0	0.0	0.0	0.0	0.0	6.0
Student guides	–	–	1463	–	545	2008
refs to health professionals	–	–	3.3	–	0.2	3.5
positive	–	–	0.0	–	0.0	0.0
negative	–	–	0.7	–	0.0	0.7
neutral	–	–	2.6	–	0.2	2.8
refs to human body	–	–	0.0	–	0.0	0.0
Activity sheets*	599	–	–	–	–	599
Handwriting books*	226	–	–	–	–	226

* There were no references to health professionals, hospitals, first aid or disease in the Year 3 activity sheets or handwriting books. There were five references to the human body.

Table 6: Portrayals of health professionals in printed mathematics materials produced by the education department for Years 3 to 7. References to health professionals include references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row are numbers of pages.

	Year 3	Year 4	Year 5	Year 6	Year 7	Totals
Child's books	537	–	–	–	–	537
refs to health professionals	0.0	–	–	–	–	0.0
positive	0.0	–	–	–	–	0.0
negative	0.0	–	–	–	–	0.0
neutral	0.0	–	–	–	–	0.0
refs to human body	0.0	–	–	–	–	0.0
Assignment/activity books	–	497	379	453	426	1755
refs to health professionals	–	0.0	7.1	0.0	0.0	7.1
positive	–	0.0	0.0	0.0	0.0	0.0
negative	–	0.0	0.2	0.0	0.0	0.2
neutral	–	0.0	6.9	0.0	0.0	6.9
refs to human body	–	0.0	0.0	0.0	0.0	0.0
Activity sheets	497	–	–	–	–	497
refs to health professionals	0.2	–	–	–	–	0.2
positive	0.0	–	–	–	–	0.0
negative	0.0	–	–	–	–	0.0
neutral	0.2	–	–	–	–	0.2
refs to human body	0.0	–	–	–	–	0.0
Instruction papers/student guides	–	801	898	676	940	3315
refs to health professionals	–	0.0	29.2	1.5	0.1	30.8
positive	–	0.0	0.0	0.0	0.0	0.0
negative	–	0.0	0.0	0.0	0.0	0.0
neutral	–	0.0	29.2	1.5	0.1	30.8
refs to human body	–	0.0	0.9	0.0	0.0	0.9

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Table 7: Portrayals of health professionals in resource books for Years 3 to 7. References to health professionals include references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row are numbers of pages.

	Year 3	Year 4	Year 5	Year 6	Year 7	Totals
Resource books	1654	1622	1495	1915	1412	8098
refs to health professionals	0.5	8.1	5.5	8.3	21.1	43.4
positive	0.0	2.0	0.5	0.2	1.2	3.9
negative	0.3	1.1	0.7	0.2	6.9	9.2
neutral	0.2	5.0	4.3	7.9	13.0	30.4
refs to human body	36.0	0.0	0.1	0.0	0.0	36.1

Table 8: Portrayals of health professionals in audiovisual curriculum material for Years 3 to 7. References to health professionals include references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to minutes.

	Year 3	Year 4	Year 5	Year 6	Year 7	Totals
Audio	962	999	1500	1276	751	5488
refs to health professionals	0	3	4	0	0	7
positive	0	0	0	0	0	0
negative	0	0	0	0	0	0
neutral	0	3	4	0	0	7
refs to human body	47	0	0	0	0	47
Video	33	46	402	126	202	809
refs to health professionals	0	0	15	0	1	16
positive	0	0	9	0	0	9
negative	0	0	1	0	0	1
neutral	0	0	5	0	1	6
refs to human body	0	0	0	0	0	0

The total quantity of information about health professionals in all the curriculum materials combined was tiny compared to the total quantity of materials. Often there was only one sentence which mentioned a health professional. The negative messages were nevertheless powerful. For example, the following sentence about a drunken doctor who only assisted a patient because he was forced to is from a compulsory reading book for Year 5: 'The last two children were born in the bush—one while her husband was bringing a drunken doctor, by force, to attend to her' (Lawson, 1988, p.14). This sentence was the only reference to a health professional in the book. The reference took up only one tenth of one page of the book, using the measuring system described in Chapter 3 for quantifying the references to health professionals. Nonetheless, the sentence gives a poignant negative image of a health professional.

Negative references to health professionals appeared in all the years of the set curriculum materials reviewed; in some years, a couple of times through the year. The students seemed to be receiving small but repeated, reinforcing and consolidating messages about the negative qualities of health professionals. Sometimes the reinforcement was almost instantaneous. For example, after listening to the audiotape section about the children's graves described on page 96, students had to match sentence beginnings with sentence endings about the graves, then rewrite the completed sentences into the *Historic Brisbane* brochure they were completing. This brochure was laminated by the school before being returned to the student to keep. One completed sentence was: 'One of the three graves tells of the story of William Roberts, age five years two months, who was treated with painkillers from the hospital for an unknown disease.' This sentence is written in a way that implies that the treatment provided by the hospital killed five-year-old William, and clearly has the potential to engender or strengthen negative feelings, including anxiety, towards hospitals and health professionals.

These negative references to health professionals came from a wide variety of sources. As Tables 5, 6, 7 and 8 show, they were found in both the curriculum materials produced by the education department and the books, audiotapes and videotapes in the resource packs, suggesting that there may be a negative perception of health professionals ingrained in society, or at least ingrained in authors and those who produce learning materials for school students studying by distance education. This contrasts with the annual Roy Morgan *Image of professions* survey. As I reported on page 31, in 2012 this survey rated nursing as the most ethical and honest profession for the 18th year in a row (Morgan & Levine, 2012). Doctors and pharmacists are also consistently near the top.

Other issues with the information about health professionals in the set curriculum materials.

When analysed purely from the perspective of widening students' career choices, the information in the curriculum materials about health professionals had other shortcomings. Only a narrow range of health professionals were mentioned in the materials, with some entries giving no insight into what was involved in the occupation concerned. Further, none of the information was presented in a 'this is a career you could consider doing' manner.

The references to health professionals in the set curriculum materials did not explore the diverse range of health professional careers available. The information about health professionals mainly involved doctors and nurses and, to a smaller extent, dentists and ambulance officers. The following is the only reference I could find to a physiotherapist: 'Hydrotherapy every morning, I guess. Ray lamps, some physio and gentle exercises, finding what tablets are best, and in what doses. For most of the time just rest' (Thiele, 1988, p.44). Medical students were briefly mentioned once, and there was one small picture and one segment of text referring to pharmacists. There were no references to the diverse range of other health professionals, such as radiographers, speech therapists, occupational therapists, social workers, laboratory technicians and so on. Nor were students given an impression of the broad spectrum of specialties and subspecialties that health professionals can work in. For example, the only doctors mentioned were general practitioners, rheumatologists, general and plastic surgeons, and the flying doctors.

Some references to health professionals did not provide any information to help students build their knowledge about those careers. For example, the following reference to a plastic surgeon in a Year 5 (unit 15) resource book does not give any insight into what a plastic surgeon actually does:

Question: What happened to the plastic surgeon who sat too close to the fire?

Answer: He melted. (Robinson, 1987, p.14)

There was no reference to health professionals in terms of career options for the students in the set curriculum materials. That is, at no time were students asked to consider or reflect on health professional careers as career options for themselves. In all the curriculum materials reviewed, there was one small section on career planning. This section was in the Year 7 materials, was optional, and focused on exploring the career planning involved in becoming a chef, a restaurateur, a fashion designer and a musical instrument maker. In contrast, there was a dialogue in a Year 7 (unit 1) narrative advising

against a medical career: ‘After another long and difficult day the doctor discouragingly states, “Whatever you do, don’t be a doctor when you grow up, Alexandra—that is, if you like a good night’s sleep” ’ (Fowler, 1985, p.71).

To sum up: before students can aspire to a career they must first know about that career. I analysed the set curriculum materials for distance education as a source for learning about health professional careers for students living in rural and remote Australia and studying by distance education. I argued that the curriculum materials would be an important source of such information given the students’ geographic isolation, ‘living in a cocoon world’ as one teacher described it, the families’ and communities’ focus on the agricultural industry, and the shortage of health professional role models in rural and remote Australia.

When I began reviewing the curriculum materials, the original goal was to document how much information the materials contained about the health professional careers. As the review process progressed I realised I needed to classify the material according to the nature of the portrayal as well as quantify the information, because the nature of the portrayals could influence students’ perceptions of, and aspirations towards, these careers. I also realised that I should include information about diseases, hospitals and first aid within the health professional category, and consider, although separately, information about the human body.²² I reasoned that information about any of these could spark an interest in a health professional career.

Overall there was little information within the health professional category. None of the information was presented in a manner that would suggest to the students that these were careers which they could consider for themselves. Most of the information about health professionals was coincidental to the focus of the narrative or other text, was not elaborated and was only a small part of the material. The information did not appear to have the potential to increase knowledge of the range of careers in health, because only a narrow range of health professional careers was represented.

²² Information about the human body in the school curriculum also has other relevance to health.

For example, education, a balanced healthy diet and exercise from an early age are thought to be important in the prevention and management of obesity (Australian Medical Association Queensland, 2007). Australia currently has an epidemic of obesity and associated chronic diseases—diabetes, heart disease, joint pathology—which has and will have a significant impact on individual and population health and economic wellbeing (Cameron et al., 2003; Clarke & Steadman, 2011; Durie, 2011; Norton, Dollman, Martin & Harten, 2006; Rissel & Martin, 2011).

Most of the references to health professionals in the curriculum materials depicted them in a neutral manner. In addition, there were a number of negative portrayals of health professionals present in every year level reviewed and in a spectrum of the materials used in the curriculum. These negative portrayals questioned the character, ethics or professional skills of health professionals, especially doctors. Thus the curriculum materials appeared to endorse popular antagonisms and ignorant judgements about health professionals, and in doing so had the potential to have a harmful influence on the perceptions and aspirations of students, parents and teachers in relation to these careers. There were fewer positive portrayals of health professionals than neutral or negative portrayals.

Reflection on these references about health professionals seems important when considering these students and health professional careers and healthcare. Given the anxiety expressed by students towards healthcare settings such as hospitals (see pages 180–3) and the long-term negative effect this can have (Hill, Pawsey, Cutler, Holt & Goldfield, 2011), and given the students' generally negative perception of health careers prior to the educational activities (see pages 174–7), I would recommend that consideration be given to reviewing the place of subjective negative representations of hospitals and health professionals in these materials.

In the next section I look at participants' holistic impression of the school as a source for learning about careers, especially health professional careers, available to students during their years of evolving career development.

Learning from school: How participants perceived the school as a source of knowledge

While the curriculum materials analysed above were the principal sources for learning offered to students, these were supplemented by air lessons and occasional face-to-face events, as well as extracurricular activities, such as violin lessons, delivered over the telephone. Curriculum content is important, but is not always the same as what students learn. Interviews indicated that in this case the limited information about health professionals and health professional careers in the set curriculum materials was closely paralleled by what students had learned. As one Year 9 student put it, reflecting on her schooling overall: 'In terms of occupations and stuff we never really got taught anything' (Kristy Grange). Furthermore, this student's view was paralleled by the teachers' and parents' holistic perceptions of the health professional career education provided by the school. Here, I explore these perceptions of opportunities to learn about careers and, in particular, health careers, offered by the school in addition to the set curriculum materials.

Most of the parents interviewed had been their children's home tutor for a number of years, and as such had a close knowledge of the education, including career learning, provided to the students by the school. In general, they believed that students received very little career information from their school. They reflected on the different modes of delivery used by the school to provide education to draw this conclusion. They thought there was little information in the set curriculum papers, in air lessons or at the face-to-face events. This accords with both my analysis of the curricular material and the more general findings in the career education literature (McMahon & Rixon, 2007; Watson & McMahon, 2005). As I showed in Chapter 2, Watson and McMahon (2005) indicated that despite recognition that childhood is the period when foundations are laid for career choices, little is being done to explore careers during childhood in Australian primary schools. As one parent with 14 years experience as home tutor summarised it, with marked deliberation in her words, the school only provided information about any careers in 'a very, very limited way'. She explained further:

The material that the children are given to learn their general knowledge and lessons from does not really cover career options and the time that we have with having guest speakers is very limited. It is limited to the half-hour lesson unless teachers are able to combine them. And even the question time that the children have with these guest speakers is very limited. Excursions when the children are little—like they go and see the fire engine and the ambulance and different things during activity days, however I don't think they look at those as career options at that time—it is just a wow! whiz! bang! (Sally Orand, initial interview)

Parents thought guest speaker sessions were an under-utilised source for learning about careers, partly because they were infrequent ('there is not too many of them'), and partly because, as the parent cited at length above indicated, they were limited in time. In addition, none of the parents could recall a guest speaker session when the topic was health professional careers, or any careers. At the main school there had been isolated incidents of health professionals speaking with the students as guest speakers. The focus of these sessions, however, had not been on the speaker's career. For example, a dentist known to one of the teachers had spoken to the prep students about caring for their teeth. As a parent of three boys in lower and middle primary explained, no connection was made to a possible career in that field for the children:

I don't think they focus on: 'This could be something *you* could do with your life' enough, maybe. Like they know everyone has to go to the dentist because they look after your teeth but I don't think they put the spin on: 'Well you could be on the other side, you could *be* the dentist helping the person.' (Zara Zip, initial interview)

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This parent and other study participants suggested that if career information was incorporated into a guest speaker session it could be well received. I kept this information in mind when putting together the educational activities for this project.

Bernadette Lyon, the only parent who lived in town and the parent who had years of experience teaching distance education before taking leave to home tutor her own children, appeared to have slightly different views from the other parents and teachers. In contrast to the other parents, she thought the students did receive career information from the school, although she admitted this was dependant on the teacher responsible for the class:

From my experience and from what I have observed and seen over the years I think there is good input from the school in terms of people to speak to about careers. I think it probably is a bit dependant on the teachers themselves being aware of the need to broaden children's awareness. So I think some teachers would do it better than others. (Bernadette Lyon, initial interview)

There is a contrast here between this parent's perception of the career education delivered by the school and the perception held by other parents. As she noted, the delivery of career information to students was dependant on the individual teacher and was not part of the set curriculum.

The teachers, in general, agreed with the parents. They perceived that these students derived little career information from the school. Like the parents, the teachers also thought that any career information from the school would be coincidental to guest speakers selected to talk on a non-career topic. As one teacher said:

There is nowhere in our curriculum where there is careers information apart from guest speakers, but often we have them on for their knowledge for a particular topic and not necessarily about a career. (Karen Neal, initial interview)

Students who continued at the main school for their secondary education were allocated one week of work experience in Year 10, and given a standard careers booklet. The week of work experience had its benefits and limitations. On the one hand, it provided students with an opportunity to have practical experience in a workplace that might interest them. It also seemed that the teachers tried to place the students thoughtfully: 'We try to put the kids into jobs that we feel they are really interested in.' On the other hand, this work experience week appeared to be limited by its brevity, the range of willing workplaces known to the teachers and families, and the availability and cost of accommodation:

Interviewer: And do they choose where they go to and is it one place or is it a couple of different places?

Teacher: Yes as far as I know they do choose from what is available. I guess they might be limited by accommodation. (Beth Innings, initial interview)

Not infrequently, the students spent the week working at another cattle property, where their family knew someone and they were accustomed to the work environment. This seemed to be the easiest solution for them, as it also avoided accommodation and meal expenses associated with doing work experience in town. Although this was the most manageable option, it did not broaden the students' horizons. There was no evidence that any of the secondary students at the school had done work experience in health.

In terms of career options, there was evidence that the teachers at the main school did not make connections between these students and the health careers. For example, two years prior to this study the distance education secondary students at the main school had a vocations camp which included visits to various work sites such as the police station and the (then) Department of Primary Industries. The teacher who organised this camp told me that she had not thought to include a health worksite:

The year before last I was in secondary [teaching secondary students]. Every three years in secondary the camp focus changes. So one year the focus for the camp is vocational. The year that we had the vocational one was two years ago. I set it up so that we could look at the different areas of occupations. One of the things I didn't think about was nursing and all that sort of stuff because unlike the DPI [Department of Primary Industries] and the defence force and the police I didn't think about it at the time—where would we go to, you know? There is obviously somewhere that we would be able to go so that they could pull together someone who could talk to you about those professions. Because they are so diverse in that area, they are all separated everywhere, that didn't even enter my mind unfortunately to go in and have a look. (Louise Gordon, initial interview)

Other students enrolled in the two schools of distance education involved in this study went to boarding school for their secondary education. For the five to six years these students are at boarding school their exposure to a range of career role models as part of their daily lives is likely to remain limited, because in and out of school hours their lives are mostly within the boundary fence of the school. Their parents are not able to directly share in formal career information provided to these students at boarding school because of distance. Parents with older children at boarding school, even without

knowing about career development theories, believed that career information provided by these schools at the secondary level was too late. As one parent with two teenage students and a younger child in primary school explained, career education had been 'extremely limited in the primary', noting that 'they really don't start looking at it until Year 10'. In her view this was 'way too late in secondary'; it was not introduced until 'they're looking down the barrel really' (Deane Ellis, initial interview).

This parents' view concurred with career development theories and the conclusion drawn from one recent large study (ACER, 2010) that 'measures to encourage university study aimed at senior high school students may be misdirected', given that 40 per cent of students who eventually attended university had first considered going to university when they were in primary school.

A number of the students at the main school went on to attend one of the boarding schools in a large rural centre. The boarding schools at this centre also attracted students from other rural areas. The main school principal, who had almost two decades of experience at School of the Air and continued intermittent association with families of past students, believed it was possible that much of the career information at these particular boarding schools focused on the agricultural industries:

But it is probably at a lot of schools it [career education] may be skewed towards the rural industry. I am thinking of the [boarding] schools in [large rural centre] rather than the city schools, which may have a broader brush approach to it. (Ugen Neeves, initial interview)

There could be a number of explanations for the focus of these secondary schools on rural industry career education. First, rural industries are the main interest of most of the parents, the students, the town and the immediate surrounding district. Second, Rural Industry Training and Extension (RITE), which delivers nationally recognised training focusing on rural and remote communities, has an office in the town (Rural Industry Training and Extension, n.d.). RITE actively promotes its school-based traineeship programs. Finally, it is likely that these schools are limited in the spectrum of career information they can provide by the human and material resources available to them.

The following exchange with a student attending one of these boarding schools confirmed the likely focus of career education on agricultural careers, and the probable limitations to learning about other careers, including health careers:

Interviewer: Thinking about the guest speakers that come to school, can you tell me what jobs they did?

Student: Um, most of them, like I can only remember RITE at the moment because they've come a few times and given a few talks. Most of the ones were like the managers, like one of the managers of the property that RITE had or Ag college. They would either run one of the properties that they would use for the students like. They would talk to us about the different jobs that you can get there and um the different properties. (Elsie Grange, Year 11, initial interview)

In summary, parents and teachers agreed that their schooling provided students with little opportunity to learn about careers. Even at the secondary level, career information was limited in quantity and diversity, with a focus on agricultural industries. No promotion of the health careers was recalled.

Lifeworlds as sources for learning

Clearly there are other sources, apart from school, from which students might learn about possible occupations and which might inform the early stages of their thinking about careers. Everyday experiences, multimedia, internet and books are examples. In terms of the health professions, health professionals they encounter from time to time are possible sources of career information and of interest in those careers. These, however, are incidental, and, as I show in Chapter 5, very few of those interviewed gave any indication that such potential sources had in practice informed their knowledge of the health professions.

The parents of the students in this study believed their children received little exposure to any careers in their daily lives, except for those careers associated with the land. For example, when contemplating these children and career information, one parent said:

I don't know how they get the information apart from what they see around themselves and what they learn from the people around them which is generally *land*. (Elise Kallagher, initial interview)

Other parents expressed similar views; that is, that the opportunities for these students to learn about careers outside of school were small. For instance, another parent commented: 'I think it is very limited ... um ... their real options and learning about real options and especially the more remote they are' (Deane Ellis, initial interview).

The uniformity of the parents' occupations contributed to limiting students' exposure to a range of careers. Some parents did their best to compensate for this limited exposure:

Interviewer: How do you think the students at your children's school obtain their career information?

Parent: I think really only through us and through people they are exposed to. We will often introduce them to people and say what they do for a living. And probably that is the only way really. (Illis Torrens, initial interview)

Getting to know about the beef cattle industry

In contrast to other careers, these students had a wealth of opportunities to learn about working on the land and, to a lesser extent, associated careers. Living on a cattle property is living on one of the main workplaces of the industry. From birth these students are surrounded by role models in the industry. From early childhood they are usually given progressively more hands-on experience and responsibility in the property workplace. As someone who has lived and worked on a remote property for nearly two decades, accessed distance education as a pupil and for my four children, and mixed with others families who live on properties, I would claim that this early practical experience is enriched by the conversations at home, at school events and at social occasions where many of the other families also work on a cattle property or for the beef industry. In addition, frequently a large portion of the reading material at a cattle property homestead has a rural focus. For example, *Queensland Country Life* states that a survey in 2006 undertaken by McNair Ingenuity Research reported that 92 per cent of the state's broadacre²³ farmers read that newspaper every week (*Queensland Country Life*, 2011).

These children are also likely to be exposed to agriculture-related radio and, to a lesser extent, television programs of interest to their parents. Having to be quiet during *The country hour* or *The market report* would be an experience shared by many children growing up on rural properties.

Getting to know about health careers

In contrast to their exposure to role models working in the beef industry, these students' exposure to health professional role models in their daily lives is likely to be limited, except where there are significant health needs in the family. Reasons for this include the shortage of a diverse range of health professionals in rural and remote areas, and the distance between these families and the closest town where health professionals

23 'Broadacre' is a term used, mainly in Australia, to describe farms or industries engaged in the production of grains, oilseeds and other crops (especially wheat, barley, peas, sorghum, maize, hemp, safflower and sunflower), or the grazing of livestock for meat or wool, on a large scale (Organisation for Economic Co-operation and Development, 2001).

work and live. Furthermore, there are features of the employment models used for health professionals in rural and remote areas that limit their integration into the wider community and restrict their presence as role models for local students. For example, many health professionals servicing rural and remote areas are employed on a fly-in-fly-out, drive-in-drive-out or short-term locum basis, and are accommodated within the hospital grounds during their short stay. The limited exposure to health professional careers from the school noted in the previous section does not make up for these environmental limitations.

It is possible that distance education students had more exposure to health professionals in the past than they do now, for two main reasons:

First, 'for many years, the Royal Flying Doctor base provided facilities so that thousands of outback children could join School of the Air' (Open Access Support Centre, 1996c, p.72). In other words, in some regions the School of the Air base originated physically within the region's Royal Flying Doctor base. Families also communicated with both services using the same two-way radio on their property. For example, the main school base was part of the region's Royal Flying Doctor base for almost three decades until the school moved in the early 1990s. Now, however, the bases of schools of distance education are geographically and functionally separate from Royal Flying Doctor bases. So when families visit their distance education base they do not also have incidental exposure to a Royal Flying Doctor base and its staff. Nor is the opportunity to have a member of the Royal Flying Doctor Service as an on-air guest speaker for students as readily available as it was in the past, when both services were located in the same building.

Second, a national decision to move nursing education to the higher education sector was made in 1984 (Department of Education, Science and Training, 2001). Prior to the change, hospital-based on-the-job training for registered and enrolled nurses was available at many rural and remote hospitals. This apprenticeship-style training provided young adults in these areas with the opportunity to become a health professional without the financial, emotional, cultural, family and social costs associated with going long distances to university. Further, a nursing student doing hospital-based training was paid a small wage and provided with optional accommodation and meals. These students in turn contributed to the economy of the community. Together these factors meant that hospital-based nursing was a career path which could be visualised and taken by rural students regardless of their family's financial position at the time. For primary and secondary school students living in rural and remote areas, this local hospital-based

training provided visible nursing student, enrolled nurse and registered nurse role models with upbringings very similar to their own.

The National Rural Health Alliance acknowledges that the shift of preservice nurse education from hospitals to university, despite the benefits, may have contributed to decreased opportunities for rural and remote residents to obtain nursing qualifications (Australian College of Health Services Executives, n.d.). There were three young mothers at the school, not participants in the study interviews, who provided incidental support for this view when they told me they had always wanted to be nurses but had never had the opportunity. For Indigenous students, the ability to study locally appears to be pivotal in attracting a greater number to health professional careers (Reiner, 2010).

Multimedia and internet

The media are other possible sources for learning about careers. However, the media were infrequently recognised as sources of career information. Television, for example, was only mentioned by one student and one parent in the main study, and by one governess in the pilot study, who said ‘I guess they get it [career information] from their parents, the people around them and there is a bit of television in there’ (Lisa, pilot study). Gatling, whose study (in progress) focuses on the portrayal of health professionals in the media, reported that media representations such as cinematic depictions, although one-sided and over-dramatised, are likely to influence the attitudes and behaviour of viewers (Gatling, 2010). For the families in this study, who see very few health professionals in real life, it is tempting to consider that media stories may have a disproportionate influence on shaping their perception of health professionals. Exploration of this is outside the scope of this thesis. However, in a recent survey of first-year university students that explored what factors influenced them to pursue tertiary education, just three per cent said they were influenced by information in the media, while four per cent were influenced by independent websites (ACER, 2010). In this study, the only participants who mentioned the internet as a source used for career information were a Year 5 student in the pilot study and one parent in the main study. This contrasts with an earlier study which considered the internet a well-utilised source for learning about careers for rural students living in town (McMahon & Rixon, 2007). Similarly, newspapers were not recognised as a frequent source for learning about careers, with only two participants referring to them. One of these was a student who commented that ‘in the [agricultural newspaper] there is thousands [of jobs]’—almost all of which are agriculture-based. This appears to support my argument on pages 111–12

that for these students many elements of their daily lives, even the newspapers they had access to, provided sources for learning about agricultural occupations.

In summary, from a very early age these students received abundant information and experience relevant to working on the land. However, the students and their parents generally received little information about other careers, including health professional careers, either from school or in their daily lives outside of school hours.

It was important to consider the career input these students received as a basis for understanding their knowledge, perceptions and attitudes in relation to the health professional careers, and as a foundation for planning the project's educational activities about the diverse range of careers in health. In the next section I look at less tangible aspects of the lives of students living in rural and remote Australia and studying by distance education. I am interested in these attributes because they may be beneficial in health care settings.

Learning attitudes, competencies and skills that may be useful in a health care setting

Apart from the knowledge that students acquire of careers from school and the world around them, there was incidental evidence that the conditions under which remote-living students who study by distance education grow up may foster skills and attributes that are likely to stand them in good stead as professional practitioners under often difficult conditions.

Through the time of the project it became apparent that these students may have qualities that might equip them for any workplace, including health care settings, and make them more likely to be recruited and retained long-term in rural areas. These qualities are not unique to children who grow up on a rural property, but they do appear to be common among these children. They include:

- a positive work ethic
- acceptance of responsibility
- hands-on skills
- long caring experiences (albeit often with animals)
- a 'connection with the bush'.

Health professionals, especially those who practice in rural areas, are likely to need a strong work ethic. This may be particularly so for rural health professionals, where the severe shortage increases the workload and on-call responsibilities of those who remain. The conditions under which children grow up on rural properties are such as to promote a

strong work ethic through modelling and early experience. Those with relatives in the agricultural industry know that they usually work six to seven days a week, starting early and finishing when darkness prevents them from continuing. By serendipity, one of the younger students gave a glimpse of this strong work ethic as part of the norm:

Interviewer: What would you call the job your dad does?

Student: He does a fair bit of work and he does it for the whole day.

Interviewer: Thank you, and have you got a name for the job your dad does?

Student: I think he just calls it 'normal work.' (Tony Torrens, Year 2)

The work experience and responsibilities bush children are given come early and usually through necessity. Rural employees are often not affordable, not readily available and not expected to work all day every day, so the parents must depend on their children in ways not experienced by most families living in the city:

Interviewer: What do you enjoy doing when you are not doing school?

Student: Helping dad and playing.

Interviewer: What do you do when you are helping dad?

Student: Muster and doing lick runs. (Carl English, Year 4)

Bush children are often partly or completely responsible for raising the poddy calves or lambs on the property, a role which includes hand-feeding three times a day for several weeks. The children are also expected to help look after other station animals such as horses, poultry, working dogs, cats and cattle. In addition, most of these children have at least one animal which is considered to be their own, such as a pony or dog.

Pet ownership, of course, is not unique to children living on remote properties. Household pet ownership among Australian adolescents has been estimated to be greater than 80 per cent (Mathers, Canterford, Olds, Waters & Wake, 2010, p.729). Even families living in units can have pets. However, most parents understand that children's enthusiasm for undertaking the daily chores associated with caring for their pet falls off after the first couple of days of ownership. This is confirmed in the study of adolescents referred to above, which showed that although a high number owned a pet, only a small number actually reported caring for and playing with the pet (Mathers et al., 2010). It is possible that these findings may not apply to the students in this study, who lived on stations where:

- animals were the family's livelihood
- the family depended on the animals as much as the animals depended on the people

- the sheer number of animals usually meant that everyone in the family had a part to play in their care from a young age.

By living with and looking after animals, these children experienced responsibility on a daily basis. They also experienced injuries and illnesses of the animals and themselves, the vicissitudes of the caring role, and life's journey from birth to death.

Bush children learn other practical skills. For example, most learn to drive a vehicle and ride a horse or motor bike from an early age. It is not uncommon for children from properties to have been driving on the property for nearly a decade by the time they are old enough to be issued with their driver's licence. As Chaplain (2010) argues:

Not all families can boast the life skills and levels of responsibility country kids acquire from simply living the 'bush lifestyle'. Working alongside adults, dealing with animals, operating machinery, learning about fire, drought and flood, as well as the general chores shared by children on stations teaches them to appreciate and understand their natural environment. (p.41)

Medical emergencies have been successfully managed by bush children equipped with these experiences, skills and an early sense of responsibility. The box on page 118 gives public examples of students living within the catchment areas of the two schools of distance education involved in this study responding to medical emergencies (these accounts have been slightly edited to remove place names). While each story is different, each tells of a student in a remote area who used practical skills learnt from an early age in a quick and responsible manner to save the lives of others.

Other outstanding contributions to Australia have been made by adults who spent their childhood in the country. It is not uncommon for these to attribute at least some of their success to their rural or remote upbringing. Given the importance of early childhood development, this is a reasonable correlation. Thus, for instance, Warwick Anderson, previously professor of physiology at Monash University and CEO of the National Health and Medical Research Council since 2006, reflects:

Research in the past decade has shown us that early environment is crucial. So, it is very probable that my love of learning, a belief in fairness, in taking responsibility for one's actions and in working hard and in helping others comes from growing up in a hardworking rural farming community. (Anderson, 2010, p.680)

Emergency responses by rural children

Laura ‘A 16-year-old girl will be recommended for a bravery award after she guided to safety an out-of-control bus full of children when its driver passed out at the wheel. The bus full of students, on their way home for the school holidays, ran off the highway at around 3 am today when the driver began to feel faint. Police said the driver attempted to pull the coach over to the side of the road but blacked out. The bus left the road, careered into a dry creek bed and struck a road sign, narrowly missing a concrete drain. Laura, who does not have her driver’s licence yet, was sitting three seats behind the driver and leapt into action after noticing something was wrong.

‘“The bus started to run off the road with a bit of a jolt and a bang and she looked at the driver and said he was blue and looked stiff,” Laura’s mother, Ms Simpson, said. “She grabbed the wheel and kept the bus straight, managed to revive the driver, who eventually lifted his foot off the accelerator, and pulled the bus to a halt.”

‘“We’re just lucky she was quick thinking and acted,” Ms Simpson said. “Like bush kids, she’s been driving since she was 10 or 11 around the place, but she’s never experienced a bus.”

‘None of the 38 passengers was injured.’ (Mancuso, 2007)

Cameron ‘When Heather [a mother living on a remote cattle property] had a tractor accident leaving her close to becoming a paraplegic with a crush fracture of the T12 vertebra, sprung ribs and a cracked sternum, Cameron [her eldest son] instinctively managed to help his mother into a car without causing her further damage and drive over a dirt road to the neighbour’s property to seek help. Cameron was 10 at the time.’ (Chaplain, 2010, p.41)

Emmy Lou ‘Eight-year-old Emmy Lou Gallagher was travelling in a ute with her pregnant mum and two younger sisters to her family’s remote cattle station when her mum Shannon, an insulin dependent diabetic, lapsed into semi-consciousness. Under pressure, Emmy Lou courageously tried to call for help but with the phone out of range, she took control of the situation and the vehicle.

‘During the 90-minute journey, Emmy Lou sat on her mother’s lap and maintained control of the vehicle while driving between speeds of 15 and 60 kilometres per hour. She guided the car over crocodile-infested waters, performed a U-turn, and finally brought the car back into UHF radio range.

‘Once close to home, Emmy Lou managed to contact her father on the UHF radio, who then contacted an ambulance. Ambulance officers were able to revive Shannon.’ (Sensis, 2010, p.1)

The potential of these children, whose early childhoods both overlap with and differ from those of children who grow up in the city, is recognised by those around them and those with similar backgrounds. As the parent who was also a governess commented:

I just think that both male and female children out here just relate so well to all different types of people. It would just be an asset say if one of the boys went in for a psychologist or a social worker. (Bernice Nissan, initial interview)

The students and their families in this study expressed an attachment to the land which was likely to influence their career choice and their willingness to work in a rural or remote area. A Year 7 student in the pilot study said: 'I just like working here where I am. I just want to stay out here basically because I couldn't live in the city' (Gary, Year 7, pilot study). Parents also talked about a connection with the land for themselves and their children; as one put it: 'You know they might have a strong connection with the land ... because we have this passion for the bush' (Tia Innis, initial interview). This connection can shape students' final career choice, with some choosing an occupation that enables them to stay connected, to stay in a rural area.

As discussed in Chapter 2, for some decades national and international studies report that, in general, a health professional with rural origins is more likely to return to work in a rural area than a health professional who grew up in the city. Previous papers have documented the concerns and challenges of city-raised medical students and health professionals when faced with rural placements (Couper & Worley, 2010; Hays et al., 1995; Sweet, 2002). Some of these challenges related to the students' displacement from the support structures, leisure activities and culture of the city. While the city offers a wide selection of restaurants, theatres, coffee shops, retail outlets, stage plays and opera as well as high-speed, low-cost internet, a rural or remote location may have one general store, one hotel and expensive, low-speed and unreliable internet. The culture and after-hours activities on offer in rural and remote areas for the most part are different from those available in the city. Much of the culture and many after-hours activities in rural areas are based on outdoor activities and 'making your own fun'. In general, those raised in the city are most at home with city culture, while those raised in rural and remote areas are at home with the culture of rural and remote areas. Those raised in the city are likely to also have extended family in the city. The point is that rural children are usually comfortable with the conditions of rural Australia, which makes it more likely that they will be recruited and retained in rural areas in adult life.

The spectrum of available jobs in rural and remote areas is limited. Usually only a small number of apprenticeships and unskilled positions are accessible to these young

people unless they are first able to go away to a large centre for variable periods of time, usually years, to undertake the study and training required for the skilled positions existing locally, such as in health and education. As mentioned in Chapter 2, this is one of the great conundrums of rural and remote areas: on the one hand, great difficulty filling skilled positions; on the other hand, no local training to increase the potential for local people to take up these positions. Inevitably young people drift away from these areas to find work or vocational education and training (Alston & Kent, 2003; Larson, 2006). Some may return, but others find life partners or a different life, and stay away. It is often said that one of the greatest exports of rural communities is their youth. But of those who leave, not all stay away (Nason, 2010, p.6). If it was possible for more of these students to learn about and become interested in the health professional careers, and if the required training was accessible to them, these occupations would provide an opportunity for them to live and work in a rural area.

One of the teachers at the main school, who grew up in a rural area, was optimistic about rural students returning to rural areas after university or other training:

I really believe that if you can encourage the kids that are out in the country to go on a certain path then they will bring that skill back out to the country whether it is the same part of the country or whether they're in a different area altogether. (Mary Gareth, initial interview)

Her belief may have been partly based on her own experience of not feeling comfortable living in the city and developing an urge to return to a rural area, as she explains in another part of the interview.

I grew up in a town the same size as I am in now and I had to go to the city to do my training and that was always told to me by my parents and by the school and the fact that there was no university in my town so it was a given and something that I was prepared to do. But after my five years in the city I definitely had the urge to get back out there into the country. I am not sure so much if it was that I felt that I needed to give back to the country but I think it was just something in me wasn't really comfortable in the city. (Mary Gareth, initial interview)

In short, these students growing up on properties in rural and remote areas of Australia have experiences and qualities which could be assets in the health professions. They appear to have a strong connection with living on the land, a connection which is likely to see many prefer to remain in, or return to, a rural and remote area to work as adults. In addition to this sense of connection to the bush, these students may have qualities which would make them an asset for any workplace, including health care

settings. These qualities are not unique to these students, but they are common in this group. They include a positive work ethic, responsibility and caring experiences from an early age, practical knowledge and experience of helping others, early work experience involving animals and machinery, and an appreciation of life from birth to death. There are examples of people both within and outside the health professions who spent their childhood in the country and go on to make outstanding contributions to Australia.

However, before these students can aspire to any career, including a health career, they must first have the opportunity to learn about that career, and then they must have the means to reach that career. In the first half of this chapter I demonstrated that these students had very few sources available to them for learning about health professional careers. In the next section I present an outline of participants' suggestions for educational activities to inform them about these careers. These suggestions were instrumental in the planning of the project's activities.

Creating new sources for learning about health professionals

The success or failure of a program to inform the main school community about health careers would, I believed, depend on delivering the information in a way the community found most useful. As I reported in Chapter 3, this project's educational activities about health professional careers were initially created, and subsequently continuously adapted, on the basis of discussions with, and feedback from, the students, teachers, governesses and parents, following ideas drawn from action research (Kemmis & McTaggart, 1988). So, in collaboration with the school community, I used the self-reflective spirals of *plan, act, observe* and *reflect* to initiate and improve the activities.

The predominant suggestion from the school community was to have real health professionals speak to them, and for them to have an opportunity to ask questions. Some visual input was also considered to be advantageous. Other ideas included:

- incorporating information into the set curriculum materials in the future
- increasing discussion at home about the health professions as possible career options
- providing relevant games, books and other literature, and utilising the internet.

Real health professionals as speakers

A common theme in the suggestions of the parents, teachers, governesses and students was to have real health professionals talk with them about their own careers. For example, one parent requested 'people coming in and giving talks about their profession so that the students realise what's out there. It's not something they are exposed to' (Elise Kallagher, initial interview). The participants thought these talks could either be at one of

the school's face-to-face gatherings—'bring them to home tutor seminars, activity days'—or as guest speakers 'over the air', with the former option offering families more visual access to the speakers. For instance, a student thought that 'maybe the school could ring up a real live nurse and um talk about jobs on air' (Belle York, Year 3). Others reinforced these ideas: 'definitely phone interviews, interviewing the person on the phone ... they can dial in, and we can dial in and everybody can listen to what they have to say' (parent Kathy Carter, initial interview).

These suggestions of having a health professional speak to the families over the telephone mark a distinctive feature of communication that is workable in the distance education setting but would not be considered at a conventional school. In a metropolitan classroom setting, a telephone presentation would not usually be necessary because it is likely that one of the parents or teachers would themselves be, or would know of, health professionals willing to do face-to-face presentations about their careers at the school.

Collectively, the school community members wanted these exposures to health professionals to be interactive sessions that explained the pathway to reaching the health professional career, what was involved in the career and the rewards of the career. For example, one parent said:

I think you could do the different people [health professionals] where you have a teleconference on air but the kids ask them and get the focus to be about how do you *become* this person and *what do they do*. (Zara Zip, initial interview)

A Year 4 student, in an almost identical manner, suggested that speakers should 'explain to the students what they [health professionals] do and how they do it' (Carl English, initial interview).

The importance of the caring/helping component of these careers as a possible inducement to the students was highlighted by parents, students and governesses. For example, the parent referred to above, Zara Zip, went on to say '... really put the spin on that they care for people and make a difference to the people's lives as I think that touches the heart of these kinds of kids a bit', and the student, Carl English, also thought emphasis should be placed on 'how they help people in their own special way'.

Some parents reflected on their past experience of what works and what does not work with guest speaker sessions, as well as their limited knowledge of the health careers, to make practical suggestions. For example, they thought that background information about the career and the health professional prior to each guest speaker session would be needed:

Um possibly speakers, but speakers do need to be quite special to hold the children's attention. Um and often they come on fairly quickly so the children haven't had time ... I think you need to lead into a speaker—some background. Like say an occupational therapist, I myself think ... well ... what exactly is that? So have some lead in to what that person does, then have a talk with that person. (Deane Ellis, initial interview)

These families appeared to be expressing the value they place on communicating with people as a source for learning. They spoke less about media, literature, computers or the internet, which are discussed later in this chapter, as means of educating their children about the health careers. This links in with findings in some educational settings that, despite the technical age, teacher-to-audience teaching remains the preferred mode. (Bye, Connolly, Farrar, Lawson & Lonergan, 2009)

These suggestions clearly constitute ways to have health professionals engaging and informing parents, teachers, governesses and students—at face-to-face school gatherings and air lessons—as sources for learning about health professional careers. The availability of these sources for learning is influenced by a number of factors. There were few face-to-face days on the school calendar. Most of these face-to-face occasions involved long-distance car travel and overnight stays. The main school divides its catchment area into six districts. It takes two working weeks for the school to provide one activity day in each of its six districts, because of the long distance between districts. It would not be possible for a range of health professionals to leave their clinical work for two weeks to provide this education. Furthermore, the budget of the project did not extend to providing for this. These cost and time restrictions meant that it was not possible to introduce a range of health professionals talking with the school families at the face-to-face gatherings for this project, but that does not eliminate this as a possibility at another time.

In distance education, learning to work with and look for the positives in what is available is essential. The workable option for this project was to have health professionals speak over the telephone to families. As noted above, this option would not be considered at a conventional school. I described in Chapter 3 how the school's telephone link-up system provided an opportunity for a diverse range of health professionals to speak about their career, from their usual workplace, with the school's isolated families hundreds and hundreds of kilometres away. This meant that the guest speakers, who provided the talks voluntarily, were minimally disrupted. It also meant that the program was not restricted to sourcing the health professionals from one location. Further, the students were accustomed to learning from voices emanating from the

telephone in their bush schoolroom. This suggests ways in which guest speaker sessions might be incorporated into the school's program more generally to provide information about health and other career options.

Parent input also suggested specific ways in which a guest speaker program might address specific issues relevant to placing health professional careers on students' spectrum of possibilities. For example, the literature review reflected on the general perception held by rural males that careers in health were the domain of females. To counter this, one parent suggested that the mines rescue team be invited to be guest speakers, as these roles may be of interest to the boys. Such a suggestion points to the possibility of selecting speakers to specifically target students to show that occupations not traditionally associated with their gender might be open and attractive to them.

The details of the 'Could I become a health professional?' guest speaker series introduced to the school community by this project were given on page 84.

Face-to-face days

Although, seemingly, the most practical way to have a diverse range of health professionals speak to the families would be to use the school telephone system, participants also suggested the value of some face-to-face activities. Face-to-face days were much anticipated social and educational events on the school calendar. They provided an infrequent opportunity for visual teaching. At these events students were also able to play games physically close to their peers, and hands-on activities could proceed in the presence of their teacher and classmates.

The face-to-face days were rare visual occasions in these students' educational journey. One of the parents recommended having health professional guest speakers both 'on air' and at the face-to-face days because 'it is important for the kids to see visual stuff as well as hearing it on air to really get a good understanding' (Bree Norton, initial interview). Participants also saw the face-to-face days as opportunities to incorporate hands-on sessions into the education program. As one parent explained:

I also think our School of the Air children seem to learn quite well from hands-on things so whether it is someone who came to activity days who could speak on a child's level, not something that was over their heads but something that they could be. Even a hands-on little first aid with the children where they actually got to do some of these. (Xavier Inglewood, initial interview)

Face-to-face days provided a rare chance for the children to play games in the physical presence of their peers. When asked for their ideas for educational activities to inform them about the health professional careers, some students recommended games. For example, one Year 6 student had the idea that 'maybe you could put it in a game, who could name the most healthy jobs to help a person' (Kelly Kallagher, initial interview). A Year 9 student's suggestion was that:

probably for young grades, up to about Year 4, it could be games, like they could pretend they were firefighters and stuff and how to put out fires and stuff or board games and stuff. (Kristy Grange, initial interview)

Although the question was specifically about health professionals and their careers, this student referred to firefighters. It is difficult to know why she did this, but it could be that her unfamiliarity with the health professions led to her including firefighters in the same category, or perhaps it was easier for her to use firefighters as an example, again possibly illuminating her limited access to sources for learning about the health professions. While the key point here is that she suggested games, her use of the firefighter example is of interest when considering these students and health professional careers.

The school also dedicated one of its two annual rounds of activity days to this project. These face-to-face activity days aimed to give the students and their families an opportunity to learn about the human body as well as about health professionals, on the basis that an interest in the human body could trigger a disposition towards one of the health professional careers. After considerable planning, sessions were presented by the teachers, puppeteers from the Uniting Church and myself.

Figure 2 gives the general overview program used for the activity days. Games (e.g. role play) and equipment (e.g. stethoscope, bandages) were included. To add to the visual input each location was decorated with a small ward at one end, large wall charts and a display of relevant library books. This was followed by the gentle introduction during the day of anonymous x-rays, Fragile Fred the friendly plastic skeleton and Legless Larry the gastrointestinal mannequin. Each child was also offered the opportunity to have their photo taken with Fragile Fred and Legless Larry, or during role play, as permanent visual reminders. The teachers and I were available for informal discussion during lunch and morning tea breaks.

SOURCES FOR LEARNING ABOUT CAREERS

Time	Prep to Year 3	Years 4—7	Equipment
8.30 am—8.45 am 15 min	Introduction		
8.45 am—9.15 am 30 min	Sport		bash ball basketballs
9.15 am—10.30 am 90 min	These activities aim to introduce the students to some of the marvels of the human body. As the title of the day says: Our brilliant body.		bones stethoscopes Fragile Fred skeleton Legless Larry gastrointestinal mannequin health-related library x-rays misc items (Sue will bring)
	Simon Says. Song and dance — <i>Dem Bones</i>	A group quiz conducted as an introduction, e.g. bones in the body.	
	An interactive session on the human skeleton and gastrointestinal system.		
	Time set aside for every child to listen to their heart with a stethoscope before and after exercise.		
10.30 am—11.00 am 30 min	Morning tea		
11.00 am—11.30 am 30 min	<i>Jackaroo Jack</i> —a humorous puppet play about a jackaroo who is thrown from his horse and finds himself in hospital where he meets a lot of different health professionals.		equipment provided by Uniting Church puppeteers
11.30 am—12.30 pm 60 min	Teeth talk	Role play game: 'Ward worries'	sheets, tongue depressors, stethoscopes, plastic thermometers, bandages, micropore, sterile swabs, walking sticks, disposable gloves, hospital gowns, pillows, x-rays, play syringes, signs, clipboards
12.30 pm—1.15 pm 45 min	Lunch, and 'fly that kite'		
1.15 pm—1.45 pm 30 min	Christian Education puppet show: <i>Fabric surgeon</i>		
1.45 pm—2.15 pm 30 min	Kite-making		
2.15 pm—2.30 pm 15 min	Conclusion: reflective questions		

Figure 2: The activity day program

Field trips/work experience. Field trips to the local hospital and work experience were less common suggestions to inform the school community about the health professional careers. The one student who suggested a hospital visit mentioned this in a long list of other suggestions. He thought ‘they could do a trip to the hospital and have a look at the different stuff to make it a bit more interesting’ (Brian Inglewood, Year 7, initial interview), because for him ‘thermometers and the different equipment they use for surgery’ would be very interesting to learn about. A focus on equipment might appeal to some students’ technical knowledge from their engagement with property work, which often involves considerable technical know-how about building, repairing and improvising equipment. It seems worth noting here that this student was a boy, and it is possible that boys in general may be more interested in the equipment than girls.

None of the parents recommended a field visit to a local hospital. Some thought that, in principle, such field trips would be a good idea (e.g. ‘I think excursions could be a good idea’), but because they did not hold positive perceptions of their local hospitals they thought in practice this could be counterproductive: ‘I don’t think necessarily to our local hospital. I don’t know that [our hospital] is always a perfect example of how a health profession can be’ (Illis Torrens, initial interview).

Teachers did suggest having field trips but, like the parents, they suggested field trips less frequently than guest speakers. They also qualified their field trip suggestions by stating what they saw as being beneficial. For example, one teacher said:

Field visits would be good. Getting the kids all in together and take them on visits to the hospital and the various places so that the people who are specialists in their field can show them their life, can show them their job, show them all the instruments they get to work with and all the interesting stuff. (Nicky Sims, initial interview)

Similarly, work experience was only mentioned by a couple of the teachers and one parent. The teachers only considered this as an option for high school students. The parent, who was also a nurse, believed confidentiality issues posed a possible barrier to work experience.

Creating opportunities for learning about the health careers in the curriculum materials

Extensions to the existing curriculum. Although overall there was little information about the health professional careers in the set curriculum materials, it was possible to see opportunities for integrating information about health professionals into

them. What I am suggesting here is extensions of what is already present in the materials, not extra blocks of learning to be squeezed into an already burdened curriculum. I will demonstrate this with two examples from the Year 4 curriculum materials. However, I wish to stress that there were other examples in Year 4 and in other year levels. It was hard to limit the examples to two.

The ten objectives for day 7 in Year 4 unit 4 were:

Session 1

- to recognise the five main food groups
- to think about the sorts of food sold at shows
- to plan a balanced meal that includes food from each of the food groups
- to understand that a healthy diet includes more of some food groups than others
- to read Chapter 7 of *Rosina and the show*
- to identify sounds in words
- to use a dictionary to find word meanings

Session 2

- to explore the senses of sight, smell and taste
 - to observe the way an optical illusion can fool people's eyes
 - to discover that the senses of smell and taste work together to help people taste food
- (Open Access Support Centre, 1996b).

These learning objectives provide an opportunistic context for drawing in discussions about dieticians, who help people plan healthy, well-balanced diets to minimise the risk of obesity and other chronic diseases, and advise patients requiring special diets on what to eat; speech pathologists, who help those with swallowing or speech difficulties; and optometrists and ophthalmologists, who both assist people to maintain sight.

Day 8 in Year 4 unit 6 was focused on sounds, ears and hearing (Open Access Support Centre, 1996a, p.60). This could provide an opportunity to inform the students about audiologists, speech pathologists and ear, nose and throat specialists who work separately and together to assist those with hearing and ear problems, in addition to their local doctors and nurses. The information could include statements such as: 'Students with an interest in how the ear works or caring for people with hearing problems might enjoy doing one of these jobs when they are adults', or 'Perhaps some of you would find one of these jobs fulfilling.'

Creating a set curriculum unit of work. A few participants put forward the idea of creating a unit of curriculum materials focusing on the health professional careers:

Parent: Whether just a unit incorporated into the units or an additional unit could be fostered. (Xavier Inglewood, initial interview)

Teacher: I'm thinking along the lines of maybe in Years 5, 6, and 7, in particular, opening up an awareness to some of those different areas by maybe organising a unit around different occupations, maybe even doing a health professional one. (Louise Gordon, initial interview)

Given the central role of the curriculum materials in these students' education, creating a unit of curriculum materials focusing on health professionals would have wide-reaching affects.

It would be possible to create a unit of curriculum materials, or extensions of existing units, as sources for learning about health professional careers. However, these things take time, and the lifespan of this project was not long enough to attempt it. Putting together a new unit of curriculum materials is a long process, which at the time of the study took place in the capital city. Each unit of work is meticulously drafted, redrafted, trialled and then further refined over a number of years. In addition, the set curriculum materials which the students were required to work through for the year of the action phase of the project were already preset. These suggestions, however, had long-term possibilities.

Computer and internet as sources for career information

Families living remotely placed little value on the internet or the computer as a means of educating the school community about health careers. A Year 1 student suggested that 'we could ring them [health professionals] up or send them an email' (Leila Carter, initial interview), but none of the other children suggested the internet (or email), CDs, DVDs or computer games as resources or means of informing them about the health professional careers. This is of interest, given that in the Widening Participation program in the United Kingdom the internet is a significant part of their education program (Hilton & Lewis, 2004).

While some of the parents did mention the internet they did so in general terms, and, in contrast to some of their other suggestions, offered little in the way of elaboration. For example, one of the few parents who went beyond simply naming the internet still provided little detail: 'get the older classes to log on and see what it actually involves' (Kathy Carter, initial interview). The single noticeable exception to this was parent Bernadette Lyon, who lived in the town of the main school base. She was considerably

more enthusiastic about utilising the internet to inform this group of students about health professional careers:

Whether there could be something on Blackboard that could be set up because Blackboard is such a good tool in our distance education setting and such a valuable addition to the learning of these kids these days. There could be some great online forums set up through Blackboard and even some learning units. I would think that would be an excellent way to go. (Bernadette Lyon, initial interview)

This parent's enthusiasm may possibly relate to her access to a superior internet service in town (faster, more reliable and less expensive) compared to the internet service available to remote families. It is also possible that she had greater opportunities to learn about the internet and easier access to technical assistance than the other mothers who lived remotely. These limitations—limited access to quality internet service and technical assistance—restricted the benefit of the internet as a source for remote students to learn about health professional careers at the time of the project.

Literature

Perhaps not surprisingly, literature such as books and brochures was recommended more frequently by parents and teachers than by students. For example, one parent thought printed material might stimulate an interest in the health professional careers, noting the benefit of having this interest 'in their minds early'. In making this suggestion she referred to her observations of her own son, who wanted to work with animals. She also thought books would have a role in holding students' interest in health careers, because she had noticed that her son sought out literature about animals. She included library books, school readers and printed sheets of text or for colouring among her suggestions.

As another example, one of the teachers recommended sending out brochures about the different careers, such as nursing, partly because 'these kids are visually orientated anyway so to see brochures might be one of the keys to hold them' (Ester Campbell, initial interview).

Conversations at home

Some teachers and parents recognised the important role parents played as sources for learning about careers. For example, when one teacher considered where the students derived information about careers she concluded that it 'probably mostly comes from their families at the moment' (Karen Neal, initial interview).

An important source of this learning from family is conversations with parents. Some parents recognised that their role in influencing their children towards the health professional careers was diminished by their limited knowledge of these careers. For example, after she was asked about the health careers in the initial interview, one parent said: 'I feel very aware now of how little I know about some of these professions' (Bernadette Lyon, initial interview). She went on to say: 'It would be good to educate the parents so that we can initiate discussions with our children as to what is out there being sort of a fairly major influence in their lives.' Thus these parents thought a program to educate the students about the health professional careers should include educating the parents.

Utilising professional contacts with health professionals

Health professionals are role models for their professions. The principal suggested that health professionals could also have a direct educational role in promoting their careers when they saw students in the course of their work: 'them [health professionals] having a bit more of an education approach at clinics and talking more about their jobs rather than their patients perhaps' (Ugen Neeves, initial interview).

This could address the lack of promotion of the professions that parents talked about: 'There is not a lot of promotion within the industry which might be a conscientious decision or something which they just haven't thought of but I don't see it as an industry that is overly promoted' (Xavier Inglewood, initial interview).

Two parents compared what they perceived as the lack of promotion of health professionals with the overt encouragement for students to join the army: 'There is not even a lot in the offices. You know how the army has posters saying, "We need you"'. The second parent even thought it was possible that

a lot of people go to the army who might be interested in going into the health professional careers. I just think it is the amount of information that is out there to give that bit of guidance really. (Bree Norton, initial interview)

In an attempt to address these participants' suggestions for more promotion of their careers by health professionals in their own workplaces, I included in my introductory letter to guest speakers the need for these students to learn about health careers from health professionals, when time allowed. In addition, I wrote a letter to the editor to *The*

Medical Journal of Australia and another to *RACP News*²⁴ explicating the potential role of health professionals in increasing these students' consciousness of the health careers during encounters with them. Both letters were published (Gorton, 2008a, 2010).

In this section I have considered the participants' suggestions for inserting sources for learning about health professional careers into students' lives to inform their evolving career development. In Chapter 3, I detailed this project's educational activities about health professional careers which were developed from participants' suggestions. Briefly, these activities included:

- the 'Could I become a health professional?' guest speaker series on air
- *Our brilliant body: Love it or lose it* activity days
- setting up displays of brochures from various universities detailing health professional career courses in the foyer of the school and at two town libraries in the school catchment
- sourcing and distributing relevant library books and two DVDs
- setting up a place on the school internet Blackboard site
- a visit to the Royal Flying Doctor base
- the interviews.

The next section, which looks at participants' reflections on the project's activities, demonstrates that when sources for learning about health professional careers are available there is an overall positive response.

Responses to the project as a source for learning about health professional careers

The activity days and guest speaker series were the backbone of the education program, and they stood out as making the biggest impression on the school community. However, it was also apparent that different components of the program appealed to different individuals and different age groups. The quotation below illustrates this, reinforcing the need to provide multidimensional learning opportunities:

Like even talking to the other parents one has one thing they really liked, such as the display at school and others have others things they really liked. Like one mum said the trip to the flying doctors that was really good and some of the guest speakers and that. (Tia Innis, parent, follow-up interview)

The activity days made the biggest impression on the participants:

²⁴ *RACP News* is the Royal Australasian College of Physicians' bimonthly news magazine, distributed in print to Fellows and trainees as well as being published online (Royal Australasian College of Physicians, 2009).

The puppet play and also the role play, that the children did at different school days around the districts, were absolutely terrific. I thought that they were the best thing that could have been done, particularly with young children and they've probably never been to hospital before and it was just great to expose them to the different areas of health and what could happen. Yeah, just open their eyes up. Great!

(Beatrix York, parent, follow-up interview)

There were probably a few reasons for the positive responses to the activity days. First, the hands-on character of these days seemed to be particularly appealing: 'having those hands-on activities where they were involved with it, um, yes, I think that made a big impression on them (Wendy Martin, governess, follow-up interview). One of the teachers explained that in addition to being enjoyable, the hands-on activities provided a different source for learning, in this case, about these careers:

I think the students probably really enjoyed the hands-on and being able to dress up and be doctors and nurses and be able to do the first aid and those sorts of things. I think those practical things ... you know how they say you can talk and you retain a small amount but if you physically do something you retain more memory of it.

(Louise Gordon, follow-up interview)

Second, this project embedded lively, sometimes humorous, interactive, hands-on educational sessions into what were already popular events in the school calendar (the activity days), as another teacher explains:

They [the students] love activity days, that's tapping into something that they love and are looking forward to anyway. So you've got them there really keen and really willing to absorb. So you're combining the social, all the positive factors combining with this message going out. It is not a boring way, for want of a better word, of doing it all and then having other kids to talk about it as well. (Bree Norton, follow-up interview)

This teacher elaborated further on what she meant by 'the positive factors':

It's a chance for the children to get face-to-face together to see their friends, to mix and to talk with others about different things, to learn from others, to see their teachers, to see the groups working together, all that children in a regular classroom get everyday but because it is a normal thing everyday in a regular classroom it is not as exciting but because it is a rare event it is very exciting and they are keen to be there. (Bree Norton, follow-up interview)

Third, the puppet show was a popular choice. These students had rarely, if ever, watched a live puppet show before: 'They absolutely loved the puppet show' (Illis Torrens, parent, follow-up interview).

The puppet show used a backdrop and characters out of the students' own lives, such as the jackaroos and the flying doctor, to teach them about health careers. This received positive immediate responses from the students at the performance, and positive informal responses from parents subsequently. Parents believed the puppet show helped the students connect with the health careers because it had placed health professionals within the students' world: 'They really enjoyed the play. That was bringing it back down to a level that they could really identify' (Sally Orand, follow-up interview).

Fourth, attendance at the activity days was high; consequently, there was a greater opportunity to inform and involve more families. The main school principal commented:

Look there is no doubt the activity days, we had total saturation because pretty much 90 per cent of our kids attended an activity day so we got to touch a lot of kids that way. (Ugen Neeves, follow-up interview)

Finally, because we split up the year levels for some activities, the activity day offered the opportunity to target sessions to different year levels. In contrast, each week there was only one half-hour guest speaker session for the whole school community. Parents and teachers reported that they found the guest speaker sessions very interesting: 'I really enjoyed the speeches over the phone' (Kathy Carter, parent, follow-up interview). The guest speaker sessions also seemed suitable for students from middle primary level up; for example, one of the teachers of these students believed that

the health care professionals on air was an excellent idea ... that gives the kids the chance to actually listen to people who have been there done that and are still doing it and loving what they are doing and being able to access it. (Nicky Sims, follow-up interview)

But the younger students often found it difficult to stay focused during the guest speaker telephone sessions. For example, the mother who was quoted above as really enjoying the guest speaker sessions herself said that for her daughter, 'as she is only in grade 1 they [guest speaker sessions] were a bit beyond her and half an hour is a bit too long I think for a little one to listen' (Kathy Carter, follow-up interview).

Consequently the activity days were viewed as making a bigger impression on the younger children than the guest speaker sessions: 'I am speaking here about the Year 2

age group—the face to face things are definitely more important for them’ (Karen Neal, teacher, follow-up interview).

The site visit to the Royal Flying Doctor Service base was viewed positively by those who were able to attend. Although many of the families have contact with the service as patients, the visit recast the service as a workplace of fascinating occupations. For example, one parent believed the visit ‘was actually very interesting’ partly because ‘that really just prompted so many questions for the children’ (Xavier Inglewood, follow-up interview).

None of the parents or students mentioned that they had used the Blackboard site set up for the project—not even Bernadette Lyon, who had access to internet in town and who had been enthusiastic about the internet learning—‘the Blackboard things, I didn’t access, so I can’t comment on those. But I thought the rest worked really well’ (Bernadette Lyon, parent, follow up interview). Once again this contrasts with the relative importance placed on the website produced by the Widening Participation program in the United Kingdom, which aims to raise the health professional career aspirations of students living in sections of the community traditionally under-represented in those careers (Hilton & Lewis, 2004).

Two DVDs were sourced, *Health careers in the bush* (Health Workforce Queensland, 2008), and *My trip to hospital* (Royal Children’s Hospital Foundation, 2007). The *Health careers in the bush* DVD contained facts about a range of health professions, the courses associated with them, and available scholarships. This DVD was mostly of use to older students and parents. The second DVD was provided by the Royal Children’s Hospital. It was designed to inform prospective paediatric patients about the hospital. This DVD was popular among the younger children who received it: ‘They watched the DVD about the Royal Children’s Hospital many, many times. The DVD went around and around and around’ (Kathy Carter, parent, follow-up interview).

The library books purchased for this project received mixed reactions. There were practical problems with sourcing and then distributing relevant books to the participants, as discussed in Chapter 3. The distribution problem meant that some families did not receive books and so could not provide feedback:

The books from the library, I was a bit unclear as to what I was supposed to do. A sheet did come out or a list of books but not until the start of this term (and no books). (Deanne Ellis, parent, follow-up interview)

Even among families who received the library books, there were mixed responses. For some children the books had no positive effect: ‘The books were a bit basic. My son

sort of skimmed through them and wasn't very interested' (Ellis Kallagher, parent, follow-up interview). On the other hand there were families who spoke positively about the books, and perceived that library books and readers were a means of ongoing health professional education:

The library books were really good and I think that is something to maybe encourage the school to keep doing. Just you know, the readers and things to do with their everyday schooling, I think you could probably continue with that. (Zara Zip, parent, follow-up interview)

Only one parent (besides Tia Innis—see p.137) mentioned the display of brochures featuring health professional career courses in the school foyer. Not surprisingly this parent was Bernadette Lyon, the only parent who lived close to the school base. While she had not stopped to read the brochures—'we've just marched past and haven't even stopped to look' because 'when you charge into school you are on a mission, and you are heading down to all of your different locations'—she thought they 'would be beneficial for visitors to look at' but 'I don't see that as being as useful for the school on an ongoing basis because you have a different mindset when you are coming in.'

In earlier sections of this chapter I explored these students' sources for learning about health professional careers as a basis for understanding their knowledge and perceptions of, and aspirations towards, these careers. Conversations within families were identified as a source for learning about careers. On page 131 I noted that one of the parents mentioned that parents needed to be more informed about health professional careers so they could effectively discuss these careers with their children. In light of the importance parents attached to conversations at home it is noteworthy that the educational activities appeared to stimulate spontaneous conversations between family members about the health professional careers, and provide the substance and terminology to support these conversations. For example, one parent reported that 'the whole program seemed to catch his attention and really did give us um points to discuss' (Xavier Inglewood, follow-up interview), while another commented on the students' increased familiarity with many aspects of health, including the terminology: 'They learnt so much about ... just familiarity with what can happen in a hospital or a centre where health needs are met, the terminology' (Sally Orand, follow-up interview).

Two further interrelated points were made when participants reflected on the project. The first was the momentum which the project gathered: 'It [the project] was put together in such an enjoyable way and everyone just seemed to run with it and it kept getting bigger and bigger and better' (Louise Gordon, teacher, follow-up interview).

This momentum increased the learning, because it meant that more people were involved and interested, more activities were created and more conversations occurred between students, parents, teachers and governesses about health professional careers. For example, there were more discussions between families, as indicated by parent Tia Innis (page 137), and within families, as reported by parent Xavier Inglewood (page 136), which added to the learning.

There was also a sense that the project drew the community together with a common goal. Once the momentum was rolling, individuals appeared to want to be part of both the learning and creating the sources for learning: ‘Everybody enjoyed being part of it ... it was like the whole school community coming together as a community with a common goal’ (Louise Gordon, teacher, follow-up interview).

At the follow-up interviews the teachers, in general, expressed the view that all students should be exposed to health professional career education: ‘It would be good for all students to experience some kind of health professional experience’ (Nicky Simms, follow-up interview). This was because:

young people, they don’t have a clear vision of what they want to do [and] they might of knocked something down in flames not knowing what it entails. So if we can expose the kids to something they might say Wow! I had absolutely no idea it was like this and it might actually spark the interest. (Nicky Sims, initial interview)

Parents also wanted elements of the project to be continued. Some spoke in general terms: ‘I think it would be really good to keep including some parts of it [the project] each year’ (Brittany English, follow-up interview) so that ‘the information stays fresh’ (Kathy Carter, follow-up interview). Other parents requested specific elements of the project’s sources for learning to be continued:

I’d love to see the trip to the flying doctor base continued. I’d like to see the school put that into place as maybe one of the trips the children do, maybe in their early years then again later when they are a bit older. I would love to see you know the guest speakers continued ... As well as any of the hands on first aiders that they could do. They really seemed to enjoy that as well. (Xavier Inglewood, follow-up interview)

For some parents, engaging in only some parts of the project alerted them to what they might have missed out on from not participating in other components, and what their children had missed out on. For example, one parent hinted at the increased benefits her children would have gained if she had also listened to more of the ‘Could I become a health professional?’ guest speaker sessions:

Unfortunately I didn't listen to a lot of the interviews. I listened to the doctor on cancer research and if they were all of his standard they would have all have been of a good standard. It is a pity I couldn't listen to them. We would have got a lot more had I listened to all of the interviews. (Ellis Kallagher, follow-up interview)

Summary

This chapter presents strong evidence that the schools provide little information about the health professional careers. In particular, there is no formal career information or education, and the mainstream curriculum materials provide only a few minor references to health professionals, many of them quite negatively framed. There are also few opportunities in their daily life for the students to learn about the range of health professionals through incidental encounters. In contrast, students' environments and daily lives provided extensive, rich, complex knowledge of work in the pastoral area. Moreover, their lives provided not only knowledge, but practical experience and with it a range of skills, attitudes and attributes that have the capacity to make them resourceful. In addition, the students appeared to have a 'connection with the bush'. The discussion in the literature on the health professions in rural and remote Australia suggests that these qualities may be of great value for those entering such professions in those contexts, although this need not be the case.

The literature on career development, the problems involved in recruiting and retaining health professionals in rural and remote Australia, and the fact that health professionals raised in rural areas are more likely to work in rural areas than colleagues raised in the city (reviewed in Chapter 2), all provide strong arguments to support the provision of health professional career education to all students in rural and remote areas during their formal primary and secondary level schooling. Participants suggested various ways in which sources for learning about health professional careers could be created within the distance education setting for this project. After the project, their feedback showed that they responded positively when health professional career education was provided.

The next chapter builds on this analysis of the learning about health careers to show just what knowledge of the health professions the students interviewed for this project had actually acquired. It also shows the nature and extent of parents' and teachers' knowledge of these professions. It makes a clear case that prior to the educational activities that formed part of this project their knowledge was limited, but that following the activities they were able to display a substantially greater knowledge. While this

increase in knowledge must be treated with caution, it does suggest the possible value of including more (positively framed) information about the health professions in the curriculum.

Chapter 5: Knowledge of the health professions

More students from rural and remote Australia must be recruited into health professional careers if there is to be equity in health care provision and health outcomes in these areas, as I demonstrated in the literature review (Chapter 2). However, career development theorists argue that students need to have some early knowledge of a career before they can aspire to that career. In Chapter 4 I showed that students living in rural and remote Australia and learning by distance education have limited opportunities to learn about careers in the health professions. In this chapter I explore the extent of their, and their parents' and teachers', actual knowledge of those occupations.

The chapter begins by exploring students' knowledge of the diverse range of health professional careers, both before and after the educational activities designed to provide them with some knowledge of those careers.²⁵ While there is more to optimal career education than simply providing information about careers (MCEETYA, 2009), the first part of this chapter focuses specifically on students' knowledge of health professional careers in order to show:

- to what extent these students have any basis from which to even start considering a health professional career
- whether this project's educational activities produced any change in their knowledge of such careers.

From this I consider whether a career education program beginning in the early years might make it more likely that bush children could become interested in and progress to health professional careers.

In the second part of the chapter I explore parents' and teachers' knowledge of health professional careers, in order to gauge how able they are to inform students about the health professional careers, given their crucial role in influencing students' career decision-making.

Students' initial knowledge

In the initial interviews, before the action component of the project commenced, I asked students, in an age-appropriate manner, to name all the different health professions they could think of; for example, 'Tell me all the jobs you can think of that help people stay healthy or help people when they are sick or hurt' (see Appendix B1 for an outline of

²⁵ The students' knowledge of health professionals has been referred to in publications drawn from this research (Gorton, 2011, 2012) and presented at the World Congress of Internal Medicine, 20–5 March 2010, Melbourne, Australia.

the student interview questions). In general, there was little initial knowledge of the diverse range of health professions. This was equally the case with boys and girls. Further, although the older students displayed greater knowledge of these occupations, they still had a narrow view of the range of careers available in health. The significance of students' responses can be understood in relation to Gottfredson's stages of career development (1981, 2002, 2004) outlined in Chapter 2.

When I asked Prep and Year 1 students to identify the different health professions the difficulty of the question was indicated by their responses—or lack thereof. One student could only reply by silence, and a second with 'I don't know' (John Torrens, initial interview). A third was able to name 'a doctor'. When gently probed further with 'Can you think of any others who look after people when they are sick?' the response was 'No' (Leila Carter, initial interview). Children in these year levels, according to Gottfredson (1981, 2002, 2004), are likely to be at stage 1 of career development, which means they would be likely to have a positive view of all the occupations they knew of, or in stage 2, when they are likely to reject or accept an occupation based on gender stereotyping. These children did not appear to have the knowledge of health careers that they would need to help them develop aspirations to such careers at this age.

The middle and upper primary school students in this study appeared to be only slightly more informed than the younger students about health professionals. Most students were able to name 'doctor' and 'nurse,' but few could identify any of the other health professionals. For example, a Year 5 boy said: 'Doctors, nurses, surgeons, anyone who really works in a hospital.' When I enquired further with 'Can you think of the names for those?' his answer was 'No, not really' (Aaron Inglewood, initial interview). So while the student could associate health professionals with hospitals he was only familiar with the doctor and nurse roles. A Year 6 boy replied: 'Um doctor, nurse, um when I was watching the Simpsons the other day ...' (Kelly Kallagher, initial interview).

One Year 3 female student referred to a physiotherapist. When asked how she knew about a physiotherapist, she replied 'I heard it at school. We were writing down people who help us' (Dea Lyon, initial interview). It seems worth noting here that this student's awareness of the physiotherapy occupation had not come from contact in her daily life but by hearing of it through her schooling. This student's comment points to the potential for growing students' knowledge base of careers by including even quite basic information in the school curriculum. However, her next comment highlighted the limitations of her knowledge, in that all she knew was the name, with no sense of the occupation to which it corresponded: 'I can't really remember what a physiotherapist is really for'.

These middle and upper primary school children could largely be expected to be at Gottfredson's third stage—likely to have a range of 'acceptable' occupations selected on the basis of their social evaluation of all the occupations of which they are aware. The absence of any well-developed knowledge of even the existence of a range of health professions necessarily precludes these students from including those professions in the range of occupations to which they aspire.

Gottfredson's theory suggests that the secondary students would be in the third and fourth stages of career development. I outlined stage 3 in the previous paragraph. In stage 4 teenagers are likely to be searching through acceptable occupations, drawn from all those they are aware of, to find one that would be personally fulfilling. I expected these older students to have more knowledge of the range of health professions, given their greater age and therefore greater life experience and possibly more encounters with career information. The following response from a Year 10 student asked to name as many different health professionals as she could think of reflects the restricted view of the health professional careers that extended into the high school years: 'Um doctors, dentists, physiotherapists, it's hard when you are put on the spot (laughs)' (Tiffany Earl, initial interview).

There was a suggestion in Chapter 4 that students who completed distance education at the end of primary school and moved to a secondary boarding school in a large rural centre may still have limited exposure to health professional careers partly because their career education focused mainly on agricultural industries rather than taking a broad-brush approach, and partly because of the limitations of everyday life as a boarder. When I asked a Year 9 student at boarding school to name the health professions she replied: 'Doctors and nurse and um like health centre nurses, flying doctors and stuff' (Kristy Grange, initial interview). This limited knowledge is consistent with her likely ongoing limited exposure to health professionals in secondary school.

At initial interview—that is, before the educational activities about health professional careers took place—some students included occupations that did not seem to fit the category of health professions, such as hairdressers. In some cases, however, they rationalised their inclusion. One Year 5 female student named 'chef,' for instance, as a health professional and explained that a chef would 'cook the correct food and stuff' (Isis Kallagher, initial interview). While this is very unconventional, it does represent thinking beyond the limits of 'the doctor' and 'the nurse.'

To gain a deeper understanding of the students' knowledge of health careers, I also asked them a number of questions related to what someone would need to do to become a

specific health professional; for example, a dentist. Students younger than Year 4 explicitly, and sometimes implicitly, stated they did not know what was needed for a number of the health professional positions, as the following examples from Year 2 students indicate.

Interviewer: Tell me how do you think someone becomes a nurse.

Student: Um I don't know.

Interviewer: Tell me, how do you think someone becomes a dentist? What would they need to do?

Student: They would have to train to be a dentist.

Interviewer: Do you know where they would have to train to be a dentist?

Student: No. (Fleur Innis, initial interview)

Interviewer: If one of your friends asked you how could they become a doctor, what would you tell them?

Student: A doctor school to become a doctor.

Interviewer: How long do you think they might have to stay at that school?

Student: Oh maybe they'd have to be about ten ... yeah about ten.

Interviewer: Do you mean they'd have to be at the school for ten years or ten years old?

Student: Ten years old to go to that school. (Darryl Zip, initial interview)

The older students knew more, but only at a very general level. For example, when asked how someone became a dentist a Year 4 student replied: 'Go through health experience and then they have to do science and that's all the ones I can think of' (Carl English, initial interview). One Year 7 student knew that becoming a dentist would involve study, but did not know where, how or for how long. Six students mentioned university, but they were uncertain about the length of time required at university for the health professional careers. For example, an older sibling of one of the Year 2 students referred to above thought students would 'probably have to go to university' to become a health professional, but she was not aware of how long it might take:

Interviewer: Can you tell me how would someone become a nurse?

Student: They'd probably have to do lots of training at university.

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Interviewer: Good girl. Excellent. How many years do you think they would have to go to university for?

Student: Maybe five or four.

Interviewer: And what about to become a dentist—how would someone become a dentist?

Student: They would probably have to go to university too.

Interviewer: Yes, that's very true. Have you got any ideas about how long they'd have to go to university for?

Student: No.

Interviewer: What about someone who wants to become a doctor, a beginning doctor, what would they have to do?

Student: They would have to go to university.

Interviewer: About how long for?

Student: I don't know. (Krystal Innis, Year 5, initial interview)

This apparent knowledge gap is possibly explained, at least in part, by the students' lack of exposure to these careers, as discussed in Chapter 4, combined with the invisibility of universities in their lives. What was interesting was that students' knowledge of the pathways to a health professional career, while varying slightly among students, remained limited even among those nearing completion of their schooling. For example, when I asked a Year 11 student what someone would need to do to become a nurse her reply started hesitantly, and although she tried to answer she could not, because she did not know:

Um I don't know. They'd have to like be pretty hygienic themselves and they would have to know anatomy and about different illnesses like just general health. I don't really know. I haven't really thought about it before. (Elsie Grange, initial interview)

These interviews gave me the impression that the students were distanced from the health professional careers. This is consistent with my account in Chapter 4 that the sources of knowledge from which students might learn about careers did not provide opportunities for them to learn about these particular careers. The marginality of the health careers in the students' thinking is what Gottfredson and other career development theorists would be likely to predict, given that from an early age these students had limited exposure to these careers. These really were careers that they were unfamiliar

with, and it was difficult for them to answer questions even asking them to name the different health professions.

I recorded two exceptions to this overall limited knowledge of health careers. The first was a Year 5 girl whose response—‘doctors, nurses, dentists and um physiotherapists’—was a little broader than those of her peers. The second exception was manifest in the responses of three children, each of whom had more exposure to health professionals in their daily lives than the other students. This exposure came about because there had been extensive illness or injury in the family, often necessitating trips away to larger centres to see health professionals, and/or the mother was a health professional. Notice, in the following response from a Year 6 girl which is typical of the responses from these children, the greater wealth of knowledge about the health professions:

There’s a speech therapist, and there’s a physio, a doctor, a nurse, a surgeon, a brain surgeon, a dietician, there’s the ambulance, there’s the flying doctor and I don’t know what they are called but there is the bone surgeon. (Francis English, initial interview)

The limited knowledge most children had of health professional careers, and the greater knowledge among those few children with considerable exposure to health professionals through their family, was expressed in the reflections of one parent: ‘There is quite a spectrum [of health professional occupations] there and unless we as people, as a family, are exposed to any of these they are hidden from our children’ (Sally Orand, initial interview).

In summary, most students expressed little knowledge either of the range of health professional careers or of what one needed to do to enter them. There appeared to be only a small increase in students’ knowledge as they progressed through their formal education. Three students who had experienced more exposure to health professionals, through family illness or injury and/or their mother’s role as a health professional, had a greater knowledge of these careers than other students.

Students’ knowledge after the activities

At the end of the year, after the educational activities that formed part of the project, most students were more aware of the variety of health professional careers available. Even the Prep students who previously could not name any of the health professionals were able to name up to four of them. For example, at follow-up interview one Prep student named a doctor. When I asked if there were any others he could think of he

promptly added 'a chiropractor,' 'a dentist' and 'the speech lady' (Eric Zip, follow-up interview).

Those students who had only expressed an awareness of the doctor and the nurse roles before now had some concept of the diversity of roles. Some students in fact showed an impressive knowledge base: 'A doctor, a flying doctor, a dentist, a speech pathologist, podiatrist, ambulance, orthodontist, optometrist' (Leila Carter, Year 1, follow-up interview).

Older students overall also expressed a broadening knowledge of health professional careers beyond 'the doctor' and 'the nurse.' For example, a Year 7 student said: 'There is a doctor, surgeon, physiotherapist. I think there is a speech therapist, um radiologist and that's all I can think [of] off the top of my head' (Fifi Ellis, follow-up interview); while a Year 11 student expressed awareness of 'dentistry, occupational therapist, psychologist, audiologist, speech pathologist, nutritionist, surgeon, that's about all I can think of at the moment' (Elise Grange, follow-up interview).

While almost all the students in all the year levels appeared to have a greater knowledge of the different health professions after the activities, for some the names or titles of the roles were difficult to recall. Some children overcame this during the interview by describing what the role involved. For example, a Year 3 student remembered 'dentist' and then continued, without hesitation, 'people that operate on your belly and that operate on your foot and your eyes and the baby nurse ... and the x-rays' (Belle York, follow-up interview). After naming 'physiotherapist, dentist, a social worker,' a Year 2 student went on to say 'I don't know all of the names but I know some that help people learn to talk' (Felicity Stanton, follow-up interview). Other students directly stated their difficulty with the names: 'There's one more but I can't remember their name' (Darryl Zip, Year 2, initial interview).

Many of these professional titles are long, with unfamiliar pronunciations. Words like *dietician*, *occupational therapist* and *pathologist* are tricky. When the children were given the opportunity to explore the roles they were able to demonstrate the familiarity they now had with these careers even if they could not recall the name of the health professional concerned.

Clearly, then, educational activities were able to increase students' knowledge of the health professional careers. If, as Gottfredson suggests, early knowledge of a career is crucial if a student is to choose that career, then exposing students living in rural and remote Australia to information about health careers from an early age may establish one of the conditions necessary to recruit bush children into these careers.

Parents' knowledge

Parents and teachers are known to be influential in shaping students' career choices (Alloway et al., 2004). Further, as I showed in Chapter 4, parents recognise their role at home on the property in leading, and responding to, daily conversations with the students in and out of their home schoolroom. However, before parents can initiate conversations about health professional careers or provide an informed response to their children's questions about these careers, they need to have some knowledge base themselves. To understand the parents' broad knowledge of these careers, in the initial interviews I asked them to name as many of the health careers as they could think of (see Appendix B2 for an outline of the parent interview questions). I also asked them what training they thought was required to become a particular health professional. I asked parents about the length of health professional career courses as a measure of their knowledge base of these courses, because this is one of the first questions students exploring tertiary health career courses might be expected to ask.

The parents' knowledge of the health professions was broader than that of their children. However, their knowledge still appeared limited, given the number of different health professions in Australia (see box on page 148). For example, one parent identified 'doctors, nurses, liaison officers, dieticians, podiatrists, dentists,' then immediately concluded with 'That's all I can think of at the moment' (Beatrix York, initial interview). Another thought of 'doctor, nurse, physiotherapist, chiropractor, speech therapist, paediatrician' and added 'veterinarian maybe' (Zara Zip, initial interview). A third parent said 'doctors, nurses, obstetricians, paediatricians, flying doctors' (Illis Torrens, initial interview).

While each of these parents listed several occupations, it is perhaps noteworthy, in light of the fact that many of the other interviewees—parents, teachers and children—mentioned only doctors and nurses, that the list offered by the third parent, Illis Torrens, also, in fact, mentioned only doctors and nurses. Obstetrics, paediatrics and the flying doctors are three out of a large number of specific fields doctors can work in. These three professionals—the obstetrician, the paediatrician and the flying doctor—were probably mentioned because they were the three this parent had encountered as a patient—the obstetrician and the paediatrician when she gave birth to her children at a large centre a considerable distance from her home, and the flying doctor because the Royal Flying Doctor Service was and still is the family's first access to health care on their remote property. Her children, of course, are hardly likely to remember the exposure to either the obstetrician or the paediatrician.

The ANZSCO classification

The Australian and New Zealand Standard Classification of Occupations (ANZSCO) lists 80 different occupations under ‘health professionals’ (ABS, 2006), and within a number of the 80 listed occupations there are specialisations. For example, ‘physiotherapy’ is one of the 80 occupations, but the nine specialisations that a physiotherapist in Australia can choose to work in are not.²⁶ Hence there are even more fields of work for health professionals than the 80 occupations classified by ANZSCO would indicate.

The ANZSCO ‘health professionals’ category also does not include a couple of occupations of interest to this study because of the need for them in rural and remote Australia, such as Indigenous health workers and dental technicians (who are listed by ANZSCO under the ‘health and welfare support workers’ category rather than the ‘health professionals’ category).

Two of the parents’ responses to this question were shaped by overhearing relevant information on their children’s interview sessions. The education department approved one-on-one telephone interviews with students only if there was a parent, or an adult approved by the parent, listening in the background. As outlined in Chapter 3, this was possible using the telephone loudspeakers. The children were interviewed before the parents, and two parents admitted that they had heard me discuss a number of different health professional careers with their children during the educational section of the student interviews: ‘I have to admit my Year 7 child had the loudspeaker on during the first interview’ (Deane Ellis, initial interview). Nevertheless, knowledge of the health careers expressed by these parents remained limited: ‘doctor ... so then we have physiotherapists, nurses and all the different specialists, um (laughs)’ (Deane Ellis, initial interview). This parent did not elaborate on ‘the different specialists’, and apart from ‘physiotherapists’ her list really includes only doctors and nurses.

Two parents who were health professionals, and one other parent, expressed more awareness of the range of health professional careers. For example:

²⁶ The nine specialisations for physiotherapy in Australia recognised by ANZSCO are aquatic physiotherapist, cardiothoracic physiotherapist, continence and women’s health physiotherapist, gerontological physiotherapist, musculoskeletal physiotherapist, neurological physiotherapist, occupational health physiotherapist, paediatric physiotherapist and sports physiotherapist (ABS, 2006, p.280).

Well obviously the doctors and nurses and that then branches out into the different areas like midwifery, podiatry, physiology, not that I know all, dietician, surgeons, x-rays, the research people that work in the laboratory always trying to work out different medications or cures for diseases. You have the pharmacy, occupational therapist, speech therapist, yeah, ophthalmology. (Sally Orand, initial interview)

Parents' overall restricted knowledge of the diverse range of careers in health was suggested in other sections of the initial interview as well. For example, when they were asked what their reaction would be if one of their children wished to become a health professional, the parents only considered the careers of medicine and nursing, except for one parent who also mentioned dentistry.

In light of the parents' role in shaping and informing students' career development, I then sought parents' knowledge of the training required to achieve the different health professional careers. I did not ask the two parents who were also health professionals this question. The other participants provided mixed responses. What was consistent, however, was the uncertainty they expressed in replying. This uncertainty was consistent regardless of the age of their children, even though some had older children nearing completion of high school when career decision-making is at the forefront of parents' minds.

Interviewer: How long a training do you think it takes to become an occupational therapist?

Parent: Two, three years maybe.

Interviewer: Physiotherapist?

Parent: I think it is about the same, three maybe four years.

Interviewer: Dentist?

Parent: Three years.

Interviewer: Nurse?

Parent: I think a lot of that is on-the-job training—might take two years.

Interviewer: First level doctor—an intern?

Parent: I think it is six years for a doctor but do they start work a bit earlier like at five or something? (Tia Innis, initial interview)

Interviewer: What do you think needs to be done to become a nurse?

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Parent: That you would have to go to university and you may have to do a course online, I think externally now.

Interviewer: And about how long do you think it would be in the full-time equivalent?

Parent: Um two to three years.

Interviewer: And what about to be a dentist?

Parent: Um, I am not sure but I am guessing at least four years.

Interviewer: Please don't be worried about these questions. The next one was an occupational therapist?

Parent: Um two years.

Interviewer: And a physiotherapist?

Parent: Three years.

Interviewer: And the next one is a doctor, understanding that there are a lot of specialists, but just to become that first level, intern doctor?

Parent: Seven years.

Interviewer: And dietician?

Parent: Two years. (Beatrix York, initial interview)

Parents' limited knowledge of the health professional careers, and of the preparation required to enter them, can readily be understood with reference to the context of their everyday lives. The health careers are quite different and separate from the occupations of most of the families. Furthermore, there was a shortage of health professionals in their districts, and they lived a considerable distance from even their nearest small town and hundreds of kilometres from the nearest university. Parents living in rural and remote Australia are less likely than urban parents to have a tertiary education qualification themselves (ABS, 2008b), so they often have no personal experience of tertiary education to draw upon when guiding and supporting their children in their post-school choices.

I asked parents about the length of health career courses as a measure of their knowledge base. As shown in Chapter 2, the emotional, cultural, family, social and financial costs of undertaking university courses is considerably greater for students from rural and remote areas than for many students who live in a university city (Alloway et al., 2004; Cripps, 2011). Many of these costs are directly proportional to the length of the

course. It is probable that families are less likely to discuss careers that are hard for them to access.

Teachers' knowledge

As I showed in Chapter 2 and Chapter 4, teachers are another potential source of career education and information for students. To understand the teachers' knowledge base of the health professional careers I also asked them to name as many health professions as they could think of, and what training was required for particular health professional career courses (see Appendix B3 for an outline of the teacher interview questions). I reasoned that teachers, like parents, were more likely to initiate and respond to conversations about health professional careers, and thus be better able to widen students' career choices to include these careers, if they had a solid knowledge base themselves.

While in general the teachers gave slightly more extended lists than the parents, there was only a small difference. For example, one teacher spoke of 'nurses, doctors, all those in mental health, those in sports medicine' (Beth Innings, initial interview). This teacher mentioned mental health and sports medicine in addition to the usual doctors and nurses, the former possibly the result of public awareness campaigns, and the latter possibly due to her extensive involvement in sport. While it is possible that she was familiar with the spectrum of careers within each of these health sectors she did not provide any detail to support this idea, and I did not probe further about her knowledge of careers in these fields.

Another teacher said 'doctors, nursing, physiotherapists, occupational therapists, um dentists, oh there are so many, social workers like mental health', but went on to say 'there are more but I can't think of them' (Nicky Sims, initial interview). This teacher appeared to know that there is a bigger range of health professionals than she had listed, but she was not familiar enough with them to name them. As a final example, one teacher identified 'a GP [general practitioner], a nurse, a speech pathologist, a physiotherapist, a paediatrician, an oncologist, I suppose chiropractic', and to signal that that was the range of these careers within her knowledge she adds, 'and that's it' (Mary Gareth, initial interview).

In each of these examples, doctors and nurses are the first health professionals who came to the teachers' minds. Further, while their expressed knowledge of health professionals was slightly greater than that of the parents, they appeared relatively uninformed when considering the number of occupations in the health professional category recognised by ANZSCO (ABS, 2006), which I referred to on page 148.

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When I asked the teachers about the preparation and training required to become a health professional they gave more detail about preparation at the school level than did parents. They spoke about the need to choose suitable subjects and consult a guidance officer at secondary school in preparation for a health professional career. Given their training and experience as teachers, this was not surprising. For example, Beth Innings displayed her knowledge of suitable steps to take at school in the lead-up to a nursing career:

Interviewer: If one of the students asked you what is required to become a nurse, what would you tell them?

Teacher: Go to Year 12 and should do biology, physics and a four-year uni degree after that. (Beth Innings, initial interview)

Some teachers also spoke about the need for work experience during the students' school years to increase their knowledge of health careers, find out what was involved in these careers, and see if these careers would be a good match for them:

I would suggest that as they come into high school years that they definitely get a taste through work experience of the hospital situation. In the case of the kids out there perhaps spending time with the nurse when she does the flying doctor visit, just looking for opportunities. Even here I find the biggest problem is that they haven't got a clue what it is all about. In every single one of these areas these children need to have a taste experience so that they know what they could potentially do and they could see what their strengths and qualities are and whether they could achieve it. (Ester Campbell, initial interview)

When teachers spoke about the tertiary education required for specific health professional careers, while they were more informed than the parents, often they were only able to talk in general terms. For example, when asked what training would be required to become a nurse one replied: 'University entry. When they got old enough you would advise them to go to their careers adviser' (Bree Norton, initial interview), without giving other details, such as the duration of the course. Similarly, when I asked what they would tell a student with an interest in doing dentistry about the training required, they had general ideas but also some uncertainties in their responses. For example, one teacher said he would tell students: 'You probably need to work very hard at school and then have that career but it would involve a smaller choice of where you can study [than nursing]' (Ugen Neeves, initial interview). While he recommends hard work at school, he did not explain that this is necessary to achieve the result required to be accepted into the course and to have the knowledge foundations needed to manage the university subjects.

He also did not include any information about subject selection at school, or about the course. In addition, he did not say that the course is at university, never mind which universities may offer dentistry or how long the course would be.

Other teachers were similarly sketchy in their recommendations:

Oh, they would have to know that they would have to go to boarding school and finish grade 12 and then they would have to go to university and I'd want them to do lots and lots of practice before they became a dentist. So I would say a few years at university. (Mary Gareth, initial interview)

Summary

In general, students' knowledge of health careers increased during this project. In the initial interview students expressed very limited awareness of the diverse range of careers available in health. The exceptions were students who had experienced extensive exposure to health professionals due to family illness or injury and/or a close family member being a health professional. The students also had little concept of the pathways to a health professional career. When they were interviewed after the educational activities, almost all the students demonstrated an increased knowledge of the diverse range of health professional careers, although some of the health career names gave them difficulty.

Parents' knowledge of the health professional careers and the pathway to such careers was also limited. Before the educational activities, health careers appeared not to have been discussed in the home, even in those families where there were older children almost ready to leave secondary school, a time when career decision-making is at the forefront of parents' minds. The significance of this sits with the important role parents play in shaping their children's career choice.

The teachers appeared to have only slightly more knowledge about health careers and the required tertiary education courses than the parents. However, the teachers did appear to be more informed in terms of the need for appropriate subject choices in secondary school, utilising a guidance officer, and work experience.

Students' limited knowledge of the health professional careers, according to Gottfredson's theory of career development, would prevent these occupations being among those from which the students would choose a career. Further, parents and teachers appeared inadequately equipped with the knowledge of these careers, or the pathways to them, necessary to widen students' career choices to include them. Chapter 4 demonstrated that students gained little knowledge about these careers from the school or

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from their everyday life. Overall their opportunities to learn, and the richness of their learning, about the health professional careers, paled beside their learning about pastoral careers from their environment.

The increase of students' knowledge of health careers after the educational activities suggested that their knowledge vacuum could be addressed by such education—which career theorists would claim should start from an early age to be effective. Without greatly increased opportunities and richness of learning about health professional careers, these children clearly do not have the capacity to include them in the suite of career options they are forming, according to Gottfredson and other career development theorists. The consequences of this lack of opportunity, and the potential for learning that could help create at least the possibility that they might include the health professions in their radar of potential career options, are explored in the next chapter. Chapter 6 discusses participants' perceptions of the health professions, their career aspirations, and issues related to these.

Chapter 6: Perceptions and aspirations

In this chapter I explore perceptions, and aspirations, of the research participants in relation to health professional careers in my quest to understand how it may be possible to increase the number of students from rural and remote Australia who go on to become health professionals. Because health careers require tertiary education, I begin by discussing students' aspirations for school and their appreciation of the role school might play in their adult lives. I then move on to the students' career aspirations before the educational activities. After that, knowing the important role parents and teachers play in children's career choices, I review parents' and teachers' perceptions of students' career aspirations, and parents' aspirations for their children.

In the second half of the chapter I draw the discussion towards the health professional careers. To provide a three-dimensional picture, I begin by exploring parents' and teachers' perceptions of students' possible interest in these careers. I then look at students' perceptions of, and aspirations towards, the health careers before and after the educational activities.²⁷ Finally, I add to the picture by discussing participants' perceptions of the health professional workplaces most likely to be known to them: the Royal Flying Doctor Service and their local hospitals. Empirically, participants' perceptions and aspirations tended to slide into each other and, as such, were sometimes difficult to separate.

To recapitulate, Alloway et al. (2004) found that the following factors impacted on student aspirations:

- material resources and finances
- limited educational opportunity
- limited occupational models
- experiences of a vulnerable economy
- personal and emotional issues and anxieties arising from having to move away for tertiary studies or work, including the powerful sense of loss of family and friends.

A number of researchers address the importance of occupational role models and argue that they influence career aspirations and attitudes from quite early in childhood, when crucial career-related concepts and attitudes are first formed (Care et al., 2007; Gottfredson, 2002, 2004; Hartung et al., 2005; Schulthesiss et al., 2005; Watson & McMahon, 2005). The more restricted their exposure to a wide variety of careers, the more restricted will be the pool of career options for young people to choose from

²⁷ Students' perceptions of, and aspirations towards, health professional careers are referred to in a publication drawn from this research (Gorton, 2012).

(Gottfredson, 1981, 2002, 2004; Johnston, 1994). This has important implications for young people's capacity to choose careers in the health professions. The persistent shortage of health professionals, and the narrow range of health professions represented (AIHW, 2008b; Scott, 2009), means that there are severely limited occupational role models in health available for students in rural and remote Australia. In Chapter 4 I demonstrated that for these students there were limited sources for learning about health professional careers in their everyday lives or from school. Following on from that, in Chapter 5 I showed that these students, their parents and their teachers had limited knowledge of health professional careers at initial interview—although this knowledge was amenable to improvement through the provision of health professional career information. The second half of this chapter, which focuses on perceptions and aspirations in relation to health professional careers, also indirectly discusses the potential of educational initiatives to influence students' perceptions, and to widen their career choices by providing alternative sources for information about health professional careers.

Students' understanding of the connection between school and adult life

School is one platform from which students progressively move into adult life. I was interested in the students' aspirations for school, and their perception of the part their schooling would play in their future lives, to add depth to my understanding of the students and their future careers. Furthermore, students' perception of school may contribute to their future likelihood of being enrolled in tertiary education courses.

Most students aspired to finish Year 12, and seemed to have some understanding of the importance of school for their future life. Some students talked specifically about the role of school in terms of their future adult life in the bush. For example, when one Year 6 boy reflected on the purpose of his schoolwork for his adult life he stated:

Well um spelling, reading and writing that's so that I don't get ripped off by a truckie or someone guarding my cattle or my lick. With the money and that, it's when I'm buying stuff and that and when I'm counting cattle and doing stuff like that. (Kelly Kallagher, initial interview)

Other students, however, talked more generally about how their schooling would help them later on. Even younger students seemed to have a general appreciation of the role their schooling would play in their adult life. Some had a broad understanding that school would help them to learn things which in turn would help them, for example, to find employment:

Student: Um by so that I can get the job that I want to do.

Interviewer: Tell me a bit more.

Student: To learn things to help me when I grow up. (Felicity Stanton, Year 2, initial interview)

A few of the other younger students identified specific learning areas which would help them:

Student: I think it will help me a lot, to learn a lot.

Interviewer: What thing do you think will help you as an adult?

Student: Like writing, and reading and spelling words that I didn't use to know when I was little. (Ursulla Naughton, Year 2, initial interview)

These students' explicit understanding of the importance of school in their future life contrasted with Johnson's study (2000) of sixth and ninth grade students in a mainly middle class, white, urban school district in New York which found that students had a poor understanding of the relevance of school to their adult life. In the present study only one preschool student and the eldest student, a Year 11 girl, expressed no understanding of the role of school in their adult life:

Interviewer: How do you think your school work will help you as an adult?

Student: I have absolutely no idea. (Elise Grange, Year 11, initial interview)

Students' career aspirations at initial interview

When students were asked in the initial interviews what they would like to do for a job when they grew up, they expressed interest in up to three different occupations. The two most popular were working on the property and working with animals, and the students' comments revealed a considerable overlap between the two. One Year 4 boy, for example, wanted to manage a property because he was interested in working with different kinds of animals, such as cattle and sheep. Another boy thought he would eventually return to his parents' property, after he had gained some experience, because his father had 'worked really hard' and the student did not want to 'just give it [the property] up' (Kelly Kallagher, Year 6, initial interview). Within these themes girls wanted to be vets or animal trainers, work with horses and/or return to work on the property.

Other occupations students aspired to varied; for example, hairdresser, mechanic and palaeontologist were included among the occupational aspirations. Two students had a health professional occupation on their list of possibilities.

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Almost all the students seemed to aspire to occupations that involved doing things they had seen or experienced in real life. For example, many of the children who wished to work on the land or with animals attributed this to their upbringing:

Interviewer: Why did you become interested in this [animal trainer]?

Student: Because I see lots and lots of animals. (Fleur Innis, Year 2, initial interview)

Interviewer: Can you remember what made you interested in that job?

Student: Um just life out on the station, I really like horses and I really like animals and stuff. (Isis Kallagher, Year 5, initial interview)

Similarly, two students who wanted to work in an aquarium said they loved working with animals and had visited an aquarium on their holidays. Even the student who aspired to be a palaeontologist explained that his interest was sparked by real experience: 'We've had palaeontologists come to a station out here to look for fossils and I've talked to them' (Brian Inglewood, Year 7, initial interview).

These students' comments seem consistent with career development theories indicating that a child's early exposure to an occupation increases the likelihood of their entering that occupation in adult life.

In contrast, the media and internet appeared to have little influence overall on students' career aspirations. One student wished to 'train those little airport dogs'. When I asked her about this she said 'I saw it on TV once' as the basis for her aspiration. However, this student lived on a cattle station where her parents had working dogs, so it is possible that her wish had at least some foundation in her daily life with the animals on the property.

The influence of the media's portrayal of occupations on these students' career aspirations was discussed in Chapter 4. Media portrayals of occupations under-represented in rural and remote Australia may have a disproportionate influence on the perceptions of these careers held by students living in these areas.

None of the children mentioned the internet as a source of inspiration for them.

Two students included a health profession as one of their career choices. One, in early primary school, said she would like to be a doctor, because 'they help people'. She attributed her interest in this area to her mother being a nurse. This child was a younger student who did not elaborate any further. It is worth noting here that both the helping

aspect of this health career and role modelling appear to have contributed to this students' career aspiration.

The other, a high school student, considered rural nursing as one of her career options because she believed it would be a stimulating occupation which offered her both a means of maintaining her connections with the bush, and skilled employment:

Interviewer: And tell me what made you interested in each of those things?

Student: Um I really like the country and being out here and being a nurse or doing something different I think would be an exciting thing to do just to add a bit more in ... to say that you were practiced at something. (Kristy Grange, Year 9, initial interview)

In summary, most students appeared to have an understanding that school was relevant to their adult life. The two most popular themes for students' occupational aspirations were working on a cattle property or working with animals in another capacity. All the students' occupational aspirations seemed to be grounded in real life experiences.

Parents' and teachers' perceptions of students' career aspirations

When mothers spoke about what work they thought their children might engage in as adults, only one parent thought one of her children might like to be a health professional. In contrast, there were frequent references to 'working on the land', especially for the boys. At times this seemed to be an expectation that started from a very early age; for example, one mother said about her under-school-age son: 'For our son I think he will probably be encouraged by the family to come back out to the property' (Kathy Carter, initial interview). At other times it seemed to be regarded almost as inevitable, possibly fuelled by exposure, experience and accessibility combined with the children's connection to or passion for the land. Thus, one parent explained: 'My son I believe will follow eventually the footsteps of his father and become a grazier' (Sally Orand, initial interview).

There were other parents who envisaged their children returning to work on the land, but only after doing further training such as an apprenticeship: 'My second one is a boy so he will probably come onto the land but he will probably do a diesel apprenticeship or something along those lines first' (Elise Kallagher, initial interview).

The implied causal relationship between the gender of this child and his likely career choices is worth noting here.

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Teachers agreed with the parents that most of the students would like to return to work on the land. They spoke about it in terms of the students' passion, and of what they had been exposed to. One teacher thought 'they just love where they live and probably don't see the other occupations that are possible to do and still live where they live' (Karen Neal, initial interview), while a governess put it this way: 'Their upbringing, they just idolize their father who needed their help ... you could just see that was all they knew' (Wendy Martin, initial interview). They also thought a few students would do apprenticeships: 'trades like diesel fitter or something like that' (Nicky Sims, initial interview), or, possibly, tertiary studies.

Earlier in this chapter I discussed how the experience of growing up on the land appeared to drive career choices. Some children might be encouraged to do things other than work on the land, such as undertaking an apprenticeship that would meet the need for something to fall back on should the rural industry decline. The specific apprenticeships parents and teachers nominated would, in fact, not only be useful as providing a second income stream, but could be seen to be directly related to working on the land itself, in areas such as plant maintenance.

Only one teacher expressed the view that 'I suppose a lot of them will be going to uni' (Mary Gareth, initial interview). This was in sharp contrast to the views of the other teachers, and possibly reflected the fact that, having only taught at the school for six months, this teacher had only a fledgling knowledge of the families and their lives compared to that of other teachers, some of whom had been with the school for over a decade. Most teachers thought that the majority of students would like to have a future life in some way connected with their property life:

Teacher: I think most of them would hope to be working on their property and if not on their property on another property somewhere. I say that because they love the life and when they talk about their future they talk about when they come back to the land.

Interviewer: Can you tell me what they have done to make you think that?

Teacher: Just normally when they are referring to the future that tends to be where they place themselves. (Beth Innings, initial interview)

The principal also thought that 'the majority see themselves doing something in the bush', but wondered if fewer would actually work on the land because he envisaged 'less and less opportunity on the land' with 'fewer people doing more work'.

Only two students were identified by the teachers as possibly going on to a health career. These were students, already referred to on page 145, who had experienced extensive exposure to health professionals through family accident or illness, and/or having a mother who was a health professional. Both were recognised by their teachers as 'always trying to help out' and 'fairly caring and nurturing'.

Parents' aspirations for their children

Parents wanted their children to become happy and financially secure adults. When they were figuratively offered a magic wand and asked what they would most like their children to be doing when they grew up if they could choose, happiness and financial security were the two themes pervading their responses. Here, without necessarily pinpointing specific careers, the parents spoke about their aspiration for their children to find a job they would be happy doing. Sally Orand's simple response in the initial interview fairly represents several others: 'I would like them to be honestly happy within their occupations'.

Some parents explicitly associated their children's future happiness with living and working in a rural area:

To see them not necessarily to a big city ... I would probably prefer them to be a bit more rural because the lifestyle would help to create happier and more contented adults in them. (Bernadette Lyon, initial interview)

However, these mothers also spoke about the need for financial security if their children returned to work on the land, tacitly reflecting on the long-term troubled state of Australia's rural economy.

The vulnerability of rural industries to market and weather fluctuations, bushfires, increased government costs and restrictions, and other external factors is undeniable and unpredictable. Cyclone Yasi's destruction of banana farms in North Queensland (Anderson, 2011), the uncertain future faced by Australian dairy farmers with the Coles supermarket milk price war (Hatzakis, 2011), and the abrupt federal government ban on live cattle exports (Paull, 2011) are three recent examples of this vulnerability.

Financial security in this context appeared to partially depend on having 'something to fall back on'. Parents like Beatrix York had given this some thought :

I would like for them to have something like an apprenticeship or something solid behind them so it didn't matter if they grew up and had their own farms and the rural situation deteriorated, that they had something behind them to go on with in town as

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such or to have another source of income other than their farm income. (Beatrix York, initial interview)

These mothers appeared to have a raw closeness to what they perceived as the financial insecurity associated with working on the land. They wished to protect their children from it, aspiring for them to do an apprenticeship, degree or other training first as a sort of buffer or insurance against the financial fragility of the rural industries. At a different level they also thought this education and training would help their children in their adult life on the property and allow their children to give back to the rural community. Illis Torrens explained it this way:

Parent: In this day and age if they wanted to come back onto the land I would like to see them coming back onto the land with a degree or an apprenticeship or something like that so that if things don't go their way on the land they have something to fall back on. I sometimes think it can be luck. Yes I think that is what I would want them to do, if they did come back onto the land, because we have this passion for the bush, that they were to have a degree. Otherwise I would love to see them have a degree and hopefully offer it to the bush.

Interviewer: Can you say what you mean by 'not going their way'?

Parent: I think, you know, that the land is a bit of a gamble. You really are just so dependent on the weather. (Illis Torrens, initial interview)

Only one mother aspired for her child to become a health professional: 'If I could choose I would definitely encourage her to go into the health professions' (Bernice Nissan, initial interview). While this mother wanted her child to become a health professional so she could be 'really making a difference in that community', she went on to state that she would prefer her child to take on alternative types of medicine. Furthermore, like other mothers, she framed and qualified her encouragement with concern for her child's happiness: 'but basically what makes her happy. I would encourage her to do whatever makes her happy'.

Parents influence their children's career choices (Alloway et al., 2004; Hartung et al., 2005; McMahan & Rixon, 2007; Watson & McMahan, 2005). For these parents, their desire to see their children happy in their chosen career, and their perception of which careers their children would be happy in, appeared to be factors influencing whether or not they would encourage their children to undertake a specific career. For example, when I asked parents what their reaction would be if one of their children said they would like to be a health professional, one quarter expressed reservations because of attributes of these jobs that parents believed would, directly or indirectly, have a negative impact on

the child's happiness. Some parents talked about 'how long their study is going to be and how much time ahead they have got to do that' (Bernadette Lyon, initial interview). They also expressed concerns about 'the pressure doctors are under now, the medical professions are under', and how a student may enter the profession with 'good intentions' but then get 'bogged down with the paperwork side which doesn't really have anything to do with taking care of the patients' (Deane Ellis, initial interview). In formulating these views parents appeared to be considering only a narrow range of health professionals, and, in particular, to be focusing mainly on doctors. This possibly reflected their limited exposure to, and limited knowledge of, the diverse range of careers available in health.

When the mothers spoke about what their husbands would wish for their children in terms of future occupation, in general they believed their husbands would agree with them: 'I think he thinks ... no, I *know* that he thinks ... in a very similar way that I do' (Brittany English, initial interview). However, despite many of the mothers believing that at least one of their children would return to work on the land, they explained that their husbands tried not to 'pressure' their children—'he has never forced them towards the land' (Elise Kallagher, initial interview).

Students' knowledge of their parents' career aspirations for them

The children's knowledge of their parents' career aspirations for them varied. When I asked the children what they thought their parents would like them to do as adults, the younger children did not know, while the older children generally understood that their parents wanted them to be happy. The children in the main study, in general, did not express a feeling of pressure to return to the land, supporting what their mothers had said.

Most of the younger children, even up to Year 5 level, were not sure what occupations their parents wanted for them as adults:

Interviewer: What work do you think your mum would like you to do as an adult?

Student: I don't really know.

Interviewer: What work do you think your father would like you to do as an adult?

Student: I don't really know either. (Aaron Inglewood, Year 5, initial interview)

The older children were also uncertain about what their parents aspired to for them as adults. However, they understood that overall their parents just wanted them to be happy:

Interviewer: What work do you think your mother would like you to do as an adult?

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Student: I reckon she just wants me to be happy. She hasn't told me yet so I don't know.

Interviewer: What work do you think your father would like you to do as an adult?

Student: I'm not sure. He probably wants me to be happy as well and do what makes me feel good. (Francis English, Year 6, initial interview)

Four students mentioned property life when reflecting on what their parents wished for them to do as adults. One of these, a secondary student, thought her mother would prefer for her not to live such an isolated life. Here again there is a sense that her mother wants her daughter to be happy:

Interviewer: What work do you think your mother would like you to do as an adult?

Student: I think she would like me to have more of a social life than we have out here.

Interviewer: And can you tell me a little bit more?

Student: She wouldn't want us just to be a ringer or something because we don't get to make very many friends because there's not very many people out here in the bush.

Interviewer: And what work do you think your father would like you to do as an adult?

Student: I think dad's pretty happy with whatever we wanted to do and I think he would support us in whatever we chose. (Kristy Grange, Year 9, initial interview)

The second student, another daughter of the same family, in contrast, overtly expressed a belief that her father 'would rather if I had more interest in property activities'. At the same time, however, she also said: 'I'm not really sure. I don't think he particularly minds' (Elsie Grange, Year 11, initial interview).

The two other students who referred to property life when considering what their parents aspired to for them were siblings from a different family. They each thought their parents would like them to 'probably take over this place. Be a farmer too.' When asked why they thought that, the girl replied: 'Well, we are trying to build up like a little family mob of stations' (Isis Kallagher, Year 5, initial interview), while the boy said: 'Well, mum and dad always talk about it. So yeah' (Kelly Kallagher, Year 6, initial interview).

Responses to this topic were different in the pilot study. When I asked: 'What do you think your dad would like you to do as a career?' in the pilot study, three out of the four boys said they thought their father would like them to work on the property as adults.

For example, a Year 6 boy replied: 'He would probably like me to be a shearer or stay here on the farm' (Stephen). I cannot explain this difference, especially when responses to other questions were very similar.

In conclusion, parents' aspirations for their children appear to be linked to the parents' and teachers' perceptions of the children's career aspirations. Overall parents and teachers perceived that many students would go on to work on the land in their adult life, but that they might do a relevant apprenticeship or degree first which could provide skills, knowledge and financial security for working on the land. Exposure, early and ongoing experience, a connection with the bush, family tradition and expectation were reasons given for this anticipated career goal of working on the land.

Most of all, parents aspired for their children to be happy and financially secure in their chosen occupation. Parents envisaged that post-school qualifications, such as a trade or degree, would improve their children's financial security. While a health professional career could be seen to provide a qualified occupation in the bush with a secure income, these careers were not considered in this light by parents or teachers. One quarter of parents expressed concerns about aspects of health professional careers which they thought might interfere with their children's happiness. Possibly because of their limited awareness of the wide spectrum of health professional careers, here again parents appeared to focus on a narrow range of health professionals, in particular doctors, to form this view.

Parents' and teachers' perceptions of students' aspirations to health careers

There is an intimate and complex interaction between the students, their everyday lives, the significant adults in their lives and the shaping of their career choices. When I first asked parents and teachers about the students and health professional careers, they indicated that only one or two would aspire to such careers. Building on my analysis in Chapter 4 of the limited sources of learning about these careers available to the students and their families, and the discussion in Chapter 5 on students', parents' and teachers' limited knowledge of health professional careers, in the next sections I discuss how, instead of showing me a pathway between these students and health professional careers, the parents and teachers explained why the students would not aspire to such careers, and delineated pathways to other occupations. The relationship between the recurring themes in participants' explanations—such as the lack of exposure and accessibility to health professional careers—and their non-choice of these careers, highlights the interactions which shape the students' career choices.

Parents

When I asked parents in the initial interview, ‘Do you think any of the students at your school would like to be health professionals?’ they spoke mostly about why these students would *not* go on to become health professionals. Their answers reflected on:

- the students’ lack of environmental exposure, including the absence of any discussions about these careers
- access to, and attitudes towards, tertiary education, compared to other more accessible post-school options, especially working on the land
- occupational gender-role stereotyping.

As stated succinctly by one parent, the health professional careers for students who live in rural and remote Australia and study by distance education are ‘possibly careers that have been overlooked’ (Xavier Inglewood, initial interview).

Lack of environmental exposure. The parents talked about their children not having the opportunity to learn about health professional careers in two ways. First, they talked about it explicitly, with a number of parents coincidentally using the word ‘exposure’ to relay their view. For example, Illis Torrens said ‘I think that ... there is not the exposure [to health professional careers] up here’ (initial interview); and in an almost identical manner Xavier Inglewood said:

I don’t think they possibly have enough exposure ... I don’t think there is a lot of exposure to careers in health care so they [the students] can start to think in that direction. Whether that be through school or through families or through medical professions themselves. (Xavier Inglewood, initial interview)

Second, parents living remotely on properties reinforced what they said explicitly about the lack of exposure by referring mainly to doctors and nurses in their responses. One parent, who worked part-time as a health professional, believed that if there was more exposure and awareness of the diverse range of careers in health then more students might consider these as career options:

If they knew that health professionals weren’t just limited to doctors and nurses, that there were many other things out there that come under that umbrella, then perhaps people would choose that career path. (Brittany English, initial interview)

In Chapter 4 I showed that the children had little opportunity to learn about health professional careers, whether from school, from their everyday lives on their properties, or from health professionals. These parents were now saying that this lack of exposure to

health careers in all aspects of their lives was inhibiting students from choosing such careers for themselves.

A lack of discussion about careers also appeared to inhibit the students from considering these careers for themselves. In Chapter 4, parents were recognised as a source of knowledge about careers in students' everyday lives. Then in Chapter 5 I showed how the consistent uncertainty in parents' replies to questions about the health professional careers suggested that even those with older children in upper secondary school had not discussed health careers with their children. Parents subsequently confirmed this impression.

When considering health career education in the context of these students' lives, some parents took responsibility for their children's knowledge. For example, one parent commented: 'Well, probably it really is up to the parents to give the information to their children at the moment and if they don't receive that then they don't probably know any better' (Illis Torrens, initial interview).

Some parents specifically mentioned the need to talk about these careers, and blamed themselves for not initiating discussion:

You know that's the thing, there is not enough discussion around it to really um ... which is probably a lot of my fault too. I haven't really discussed it in the classroom with the children. (Bernice Nissan, initial interview)

Another parent commented that if there was more awareness, possibly some of these students would be interested in a health career. However, she prefaced this by saying that:

[I don't] have a clear idea [because] once again it is something that is not discussed a lot but what does come through is whether kids are interested in working on the properties or otherwise. (Deane Ellis, initial interview)

When parents were asked to think of students who might be interested in a health career they only mentioned nursing, not the other health careers: 'I could see people being nurses' (Kathy Carter, initial interview).

Access and attitudes The access these rural and remote students have to university is quite different from their access to work on the land. It is also different from that of students who live in a university city and progress to university after school. For many academically successful city students, attending university can seem like almost a natural progression from secondary school, not too different from their transition from primary to secondary school. They do not have to leave their family, friends or the culture they know and love. For them, the progression from secondary to tertiary education has important

similarities to the progression from secondary school to work on the land for this study's rural and remote students. There are changes, but no fundamental disruption to home or family life, or to the circle of close friends. For a rural or remote student, in contrast, attending university involves major changes and disruptions to the usual life of the student and their family. The physical distance these students live from a university means that they must relocate. Relocation involves the social, emotional, cultural, financial and family costs that have been described previously (Alloway et al., 2004; Cripps, 2011). Relocation, and what it means, are important factors influencing the relatively low participation, retention and success of students from rural and remote areas in tertiary education (Bradley et al., 2008). Almost all health careers now involve tertiary education.

This difficulty of access to health professional career courses appeared to influence parents' perception of their children and the health careers. So when a parent in this study says 'I think a lot of people shy away from how long it takes to become one' (Beatrix York, initial interview) when considering the training required to become a doctor, she is probably reflecting on much more than the years of study. Her reflections may, for example, include the cost of accommodation, travel and long distance phone calls throughout the duration of study, as well as the students' extra years of absence from family after boarding school.

There are post-school options available locally for the students which, in contrast to the health professions, are visible and accessible. In addition to working on the property, these options, as noted earlier, include apprenticeships or working for the mining companies. When asked specifically whether any of the students at the school would be interested in health careers, parents talked about the other options, and about access and attitudes to the options:

You know they might have a more strong connection back to the land. They might think you know the mines are close, um, and I guess it depends if parents are prepared to send them off to boarding school and willing or wanting them to go on to university. (Tia Innis, initial interview)

Local hospital-based nursing training, discussed on pages 113–14, was an accessible apprenticeship pathway to a health career which was no longer available. Some parents also commented on what they perceived as the financial benefits of students progressing to locally available occupations after completing secondary school, compared to becoming a tertiary-trained health professional:

You can receive so much working in a mine and driving a dump truck. Why go through four years of university and then be paid less for more hours than someone who is totally unskilled? (Elise Kallagher, initial interview)

So while the parents could envisage a smooth progression for these students from school to working on the land, they saw no such smooth progression towards a health career.

As a further example, Xavier Inglewood explained the influence of exposure, access and attitude on the students' career paths. She initially talked of the lack of 'access to it [health professional careers]' and the lack of information about those careers, and then went on to say:

I think one thing is possibly family situations. If their family is on the land the children tend to just do what they already know. I think it is sometimes simpler to slot into something that you are already familiar with, that you've grown up with and this love of it has been fostered all along, than to attempt something new and different, that you don't know anything about and that you are uncomfortable with at the start. So I think just out of simplicity they tend to go in another direction [and not to the health careers]. (Xavier Inglewood, initial interview)

Occupational gender-role stereotyping. Occupational gender-role stereotyping appeared to have both a direct and an indirect influence on parents' perceptions. It was expressed, first, in relation to health careers; second, in reference to working on the land.

When considering health careers, some parents thought they were options for both genders: 'There is no reason why boys and girls can't choose a health profession' (Brittany English, initial interview), while others acknowledged that despite the fact that traditionally male or female dominated occupations now embraced employees of both genders, in their environment traditional views were still held:

Now options for girls and boys has blurred a lot from a very defined 'this is what occupations girls go into' to now basically any occupation is open to any gender. However where we live that, um, modern way of thinking hasn't intruded our lives as much. (Sally Orand, initial interview)

In parallel with the findings of a previous study in rural Australia (Durey et al., 2001), about half the parents in this study thought health careers were in the domain of females. Nursing especially was viewed as 'a female-dominated thing' (Kathy Carter, initial interview). Occupational gender-role stereotyping can limit students' career choices and can be entrenched, but is often amenable to relevant career information,

which allows students to make informed career choices (Cook & Simbayi, 1998). As indicated by the following conversation that took place before the educational activities, here too is an opportunity to widen students' career choices through optimal education about these careers:

Interviewer: Do you think boys and girls would be interested?

Parent: I think the tendency would be, going purely on what I perceive, it would more tend to be girls.

Interviewer: Can you tell me a little bit more?

Parent: I think traditionally they would be seen as some of the caring type professions and, um, I think it would be, um, something that could be an easier draw card for girls to look at those as options for them. Probably that would be a good area to broaden girls' and boys' understanding of what those professions might offer them both. (Bernadette Lyon, initial interview)

The gendering of property work was the second way in which occupational gender stereotyping influenced the pathway between these students and the health professional careers. Earlier in this chapter I discussed parents' and teachers' perception that boys especially were likely to go on to work on the land and, as a consequence, were not likely to pursue careers in health. This was also a common theme in parents' and teachers' explanation of why few of the students would go on to become health professionals. This may be attributed to the abundant exposure and experience most of these students have to working on the land and the passion these families have for the bush. Students' exposure and experience and the families' passion for the bush was highlighted in Chapters 4 and 5. In addition, for the boys, as noted previously, there was the sense of natural progression towards work on the land, which would make them even less likely than the girls to take up a health career.

In contrast, when I spoke with the students about the health professions in general terms and not specifically as possible careers for themselves, their expressed view was that these were careers for both genders. This view can be seen to reflect what one parent cited on page 169 referred to as 'that modern way of thinking'. There was one exception:

Interviewer: Do you think there is any difference between which of these jobs [health careers] boys can do and which girls can do?

Student: Girls can nurse and boys can be a dentist.

Interviewer: Do you think girls can be a dentist too?

Student: Yeah.

Interviewer: Do you think a boy could be a nurse?

Student: No. (Tony Torrens, Year 2, initial interview)

In relation to the importance of exposure, in this case exposure through parents, it is noteworthy that in speaking thus about specific health careers Tony expresses a view that closely parallels the parents' views.

Teachers

The teachers also thought most of their students would eventually work on the land. Like the parents, teachers knew that working on the land was what these students were familiar with, what they had known all their lives and what was easy for them to fall into, as opposed to the health careers to which most had had little exposure, and which involved going away for study. For example, when I asked Beth Innings if she thought any of her students would become health professionals she replied:

Probably not, no. Yeah once again not because they couldn't be but I just don't think they would go on and study those things. They might do but it depends on what they are exposed to. Again I think the land is what they are familiar with and what is easy for them to fit back into. (Beth Innings, initial interview)

It is worth noting here that, like the parents, she referred to the influence of career 'exposure' in shaping the children's career direction. In addition, she pointed out that the students don't lack the ability to become health professionals. When I probed further she indicated their passion for the bush: 'I guess they are just so entrenched in their way of life and they do love it and they are quite happy and satisfied that they just keep doing that'.

As I noted in my earlier discussion of teachers' knowledge of students' career aspirations (page 160–1), overall teachers could identify only two students whom they thought might be aspiring to a health professional career. In both cases, they were referring to girls going on to become nurses. For example, Ester Campbell said:

I think basically looking at my particular group of children I would not think any of them, maybe one of the girls perhaps, might consider something not too academic like nursing, in comparison to say medicine.²⁸ (Ester Campbell, initial interview)

28 When this teacher said 'something not too academic', she was referring to her students needing extra reading support. This was not meant as a general statement about all the students at the school.

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When another teacher spoke about the possibility of one girl, whose mother was a nurse, going on to become a health professional, she reinforced the importance of exposure and modelling:

I am thinking that one of my students who is in Year 6 at the moment, I am thinking that this is an area that she might become quite interested in because her mum is in that area. (Louise Gordon, initial interview)

While exposure to a career is important to career choice, positive exposure and modelling would seem even more important. Another influential factor which has already been mentioned is accessibility. Louise seemed to consider these points, and highlighted them in relation to this student, going on to say:

Her mum was probably educated to a similar area to what she was, and seeing someone else doing that occupation and seeing how much they enjoy it I believe makes a difference as to what area you think you might want to work in. (Louise Gordon, initial interview)

There are similarities between what Louise was saying about this student (who, unlike most of the others, had a parent who was a health professional) and her possible career path, and what teachers and parents said throughout about other students following their parents' example and what they had been exposed to; that is, work on the land.

One teacher initially seemed to have a different view from the others. This teacher, who had been with the school for over a decade, said she believed that there had been students in the past who had gone on to become health professionals, and that therefore it was likely that there would be others in the future: 'I think the past has indicated that some [students] have [gone on to health professional careers] and I can't see why it would be any different in the future' (Bree Norton, initial interview).

But when she thought about this further she could recall only two students, both girls, who went on to become nurses, in over ten years she had been with the school: 'We've had people who have gone into nursing. One did teaching and then changed into nursing. Another one mucked around with a lot of different things first before going into it' (Bree Norton, initial interview).

Although the teachers only talked of a couple of students being interested in a narrow range of health professions, they did offer hope that this could change if the students were informed about the broad range of health professional careers: 'Yeah, I think they probably could [become health professionals] and would, if they became more aware' (Karen Neal, initial interview).

The principal, who had also been with the school for over a decade, seemed to summarise the perceptions of the other teachers. He recognised the conservative nature of the population and an element of occupational gender-role stereotyping, with boys expected to eventually work on the land and the possibility that a small number of girls might go on to become nurses. He also commented that the students' limited exposure to health careers, combined with their perception of their own intellectual suitability, made it unlikely that they would consider these careers. He concluded with the view, also expressed by other teachers and parents, that with increased awareness more of these students might consider health professional careers:

Teacher: I think of the girls perhaps going into it [health professions] and not so much the boys. I am not sure whether that is from my experience and knowing where the kids have gone or whether it is a bias.

Interviewer: And can you tell me just a little bit more about that?

Teacher: I guess the boys in the school see themselves as working the land and I guess our school catchment is still in a reasonably conservative part, you know, where the men work the land and the women have some other occupation and I guess nursing is seen as a great occupation, in terms of most small towns have some capacity to employ nurses so I guess it is considered a good career choice for the girls.

Interviewer: Do you think any of your students will become some of the other health professionals?

Teacher: They should, but probably not. I don't think they think of the huge array of possibilities in the health field. I think they see it fairly clinically as a doctor and a nurse and if they are not in the top couple of kids in their school they might discount becoming a doctor and they might not consider being a nurse but they don't see the range perhaps in between. That's just the way I think they might view it. Perhaps if they were exposed to more of those options and they realise that they were within their grasp or intelligence levels and things like that, that would certainly help.
(Ugen Neeves, initial interview)

Students and health professional careers

In Chapter 5 I discussed students' expressed knowledge of the health professional careers. Once we had finished that section of the interview, I outlined a number of these careers, being careful to pitch the talk to their age and keep them involved by making the discussion interactive. I then asked them:

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- what they thought about those occupations
- whether they could see themselves working in a health career.

At the initial interviews there was little apparent enthusiasm for the health professions. After the educational activities there was a noticeable shift in students' perceptions of, and aspirations towards, these careers.

When I asked the younger students what they thought about the health professional careers at the initial interview, some replied with either a long pause or an honest 'I don't know'. Others were more overtly negative: 'It would be hard at times. You could get frustrated at home. There would probably be some paperwork to do and it might be hard to do that' (Dea Lyon, initial interview). In contrast, one of the Year 5 girls expressed a somewhat more positive attitude—it might be 'a nice job'—but even for her this was overshadowed by negative reflection: 'I think it would be fairly hard, and you would have to be an intelligent person and you would have to go to college and do a couple of years there' (Isis Kallagher, initial interview).

Importantly, the few exceptions were the students who had experienced considerable exposure to health professionals in their everyday lives: family members requiring extensive medical attention and/or a parent who was a health professional.

After participating in the various activities offered as part of this project, most students showed a noticeable increase in their knowledge of the health professions (Gorton, 2011), as described in Chapter 5 (and, indeed, it would be disappointing and surprising if they did not). Just as importantly, this increase in knowledge appeared in many cases to be associated with a change in attitude and aspirations towards such careers, even in quite young children.

This shift in attitude and aspirations was easiest to see when I matched students' initial interview responses with their responses at the follow-up interview. Thus, for example, in her initial interview one of the Year 2 girl's response to my general question about what she thought of jobs in the health field was, simply, 'Good.' When I asked whether she could see herself doing such a job when she grew up, she answered with an unadorned 'No.' She was not alone in this minimal type of response. One of the boys in the same grade, for instance, answered these questions in almost identical terms:

Interviewer: What do you think about those jobs [the health professional careers]?

Student: Um good.

Interviewer: Thank you. Can you tell me any more?

Student: No.

Interviewer: Can you see yourself doing any of those jobs?

Student: No. (Tony Torrens, initial interview)

Although this part of the initial interview followed a summarised outline of a range of health professional careers, the limited interest in health professions as possible occupations can be sensed from these students' one-word answers. When I inquired a little further to try to understand why there was no interest in these careers, some students were unable to identify or name a reason. So while most were quite definite that they were not interested in working in a health professional occupation, they did not know why. Year 2 student Fleur Innis provides an example of this:

Interviewer: Can you tell me more—why couldn't you see yourself doing any of those jobs?

Student: I don't know anymore. (Fleur Innis, initial interview)

It was not surprising that the six- or seven-year-olds were not able to explain why they did not want to do something. Indeed, upon reflection, even asking them seems somewhat naïve—they could not even name the jobs, let alone see themselves in them. What was surprising was their ability to talk more articulately on follow-up interview, with relatively little advancement in age. Thus, if we look at these younger students' responses to similar questions—'What do you think of those [the health professional] careers?'—at follow-up interview, we find that their replies were more expansive, and more enthusiastic about the health careers. Their answers appeared to reflect some confidence in their knowledge of the careers as they substantiated each of their replies with a reason. They also now appeared to see that one of those careers might be right for them. This is what Fleur Innes (quoted above) had to say at follow-up interview:

Interviewer: What do you think of those careers?

Student: They're very special because if you have something wrong with your muscle they can make you better.

Interviewer: Do any of those health professional jobs interest you?

Student: I might be a foot person because I like massaging feet. (Fleur Innis, follow-up interview)

Similarly, when I asked Tony Torrens (quoted above) what he thought of the health professional careers in the follow-up interview, he replied 'I think they would be really cool jobs to have', which rings with considerably more enthusiasm than his 'Um good' reply in the initial interview.

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This change in interest was confirmed when Tony was asked if he would consider any of the health professional careers for himself. In the initial interview he said 'No', which contrasts with the more positive 'I would like to' in the follow-up. It appears that what he was responding to was the helping aspect of these careers, as he went on to say: 'You would help people and make people better.'

The responses of older students in the initial interviews were, to some extent, more elaborate, but the contrasts between responses prior to and following participation in the activities that were evident among the younger students were also evident here. The responses of a Year 5 boy demonstrate the change in attitude that also occurred for this older group of students. In response to a series of questions in the initial interview, he expressed a negative perception of the health professional careers:

Interviewer: What do you honestly think about those jobs?

Student: They'd probably be hard work.

Interviewer: Why do you think that?

Student: Because you would have to get good grades in school and you would have to know a lot and would have to know how to do it.

Interviewer: And what do you think it would be like to be one of those workers?

Student: It would be very hard and frustrating.

Interviewer: And tell me why?

Student: Because there would be a lot of people.

Interviewer: And how would that make it hard and frustrating?

Student: Because everyone would be going in different directions and it would be very easy to get confused.

Interviewer: Some of these people work in hospitals, they don't all, what do you think a hospital would be like as a workplace?

Student: It would be very chaotic and busy.

Interviewer: And can you imagine yourself doing one of those jobs?

Student: Not really. (Aaron Inglewood, Year 5, initial interview)

In this interview he openly expressed a pervasive negativity towards the health careers. His negativity included his perception of the need to achieve at school, the difficulty acquiring the requisite knowledge, the difficulty of the job, and the 'chaotic and

busy' workplace. It was not surprising that, when I asked if he could imagine himself doing one of the health professional careers, his response was 'not really'.

This student's shift in attitude was evident in the follow-up interview:

Interviewer: If you couldn't be a zoologist or a vet when you grow up do any of those [health professional] jobs interest you?

Student: Probably.

Interviewer: Which ones do you think would be of most interest?

Student: I'm not really sure as they'd all be interesting to do.

Interviewer: Thank you, and just imagining if you were to do one, what about them do you think would be interesting?

Student: Having to learn all the different parts of the body and finding out how the parts work and ... (Aaron Inglewood, Year 5, follow-up interview)

Aaron now appears to be canvassing different health career possibilities: 'they'd all be interesting to do'. The significance of his willingness to explore a range of possible health professional careers is not related to *which* specific career he might nominate, but to the fact that this willingness reflects a marked change in attitude. In contrast to the first interview when he was negative about a number of aspects of health professional careers, at the follow-up interview he identified at least two aspects of these careers which interested him. He thought all the health careers would be 'interesting to do'. Further, it appeared that this change in attitude was premised on his knowing far more about the range of such careers.

Some students expressed a general fear of hospitals and doctors' clinics at the initial interview, while others had a more focused apprehension; for example, issues with blood. These fears appeared to colour their perceptions of the health professional careers and contributed to them shutting out these careers as acceptable for them to consider. While these students' initial perceptions of the health professional careers were tainted by their stated inability to tolerate blood, for example, or what they perceived as the goriness of the health careers, combined with their limited knowledge of the wide range of careers in health, their perceptions on follow-up interview were not as clouded by these concerns. Fifi Ellis, a Year 7 student, is an example of these students. In the initial interview she expressed her dislike of blood and displayed a limited knowledge of the array of health professional careers by her tacit assumption that all these careers involve blood:

Interviewer: What do you think of those [health professional] careers?

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Student: Good but not for me. I don't like blood. (Fifi Ellis, initial interview)

In contrast, at the follow-up interview she said she would consider a health career: 'Yes, I probably would.' She still recognised a little squirminess, but no longer allowed this to interfere with her now more positive view of these careers. She was now able to work around her apprehensions, possibly because, through her broadened and more in-depth knowledge of the variety of careers available in health, she knew they did not all involve dealing with blood. She also seemed to understand that there could be some arduous study at university involved, but that this could be balanced by the reward of the life experiences that would follow. The greater understanding of the health professional careers displayed in her answers seems to parallel her greater interest in these careers:

Student: It would be very interesting but it would also be very difficult to learn. You would have to do university but you would certainly get a lot of life experience out of them.

Interviewer: Thank you, and what parts of it do you think would be interesting?

Student: I think lots of different parts would be good, but I just think all the different types of cases that you would get in would be very interesting.

Interviewer: Would you consider one of those careers?

Student: Yes, I probably would. I would probably go more for the physiotherapist or a nurse. I don't know if I would be too good with wounds. (Fifi Ellis, follow-up interview)

I discuss students' fears in more detail in the next section.

In Chapter 4 and earlier in this chapter I showed that the media appeared to play only a small role in shaping these students' career aspirations. Nevertheless, it was acknowledged that media portrayal of occupations may have a disproportionate influence when there were few other sources for learning about them. Year 6 student Kelly Kallagher, for example, thought a health professional career might be 'all right' after the educational activities, then added, perhaps cautiously, 'but you hear on the news that they [health professionals] are not well paid sometimes and they go through a lot of rubbish' (Kelly Kallagher, follow-up interview). While Kelly was the only student who mentioned any media influence at the follow-up interview, the potential influence of the media should not be forgotten.

Although the extent of the shift in attitude towards the health professional careers varied, most students' responses in the second interviews gave a strong sense that their initial attitudes, at least in part, reflected limited knowledge. For some students, the world

of potential careers appeared to open out. What two teachers and two parents described as the ‘eye-opening’ effect of this project on the students is epitomised in the following comments about the health professional careers after the activities: ‘Um ... people may not have thought that it would be that good for them, but when they tried it, it’s like, WOW!’ (Belle York, Year 3, follow-up interview).

Participants’ perceptions of hospitals

In my search to discover how students in rural and remote areas could be enabled to see health career options as more imaginable for them, I explored participants’ views of the local hospitals and Royal Flying Doctor Service. Many health professionals work in hospitals and (to a much smaller extent) for the Royal Flying Doctor Service. I was interested in both as workplaces for health professionals, and I was interested to know whether they were seen as inspiring or uninspiring. Further, I thought it possible that parents’ expressed views about the local hospital and Royal Flying Doctor Service might give an indication of the perceptions about these services that were portrayed in conversations at home.

The data for this part of the study were collected at initial interview; that is, prior to the educational activities about health professional careers. I asked teachers and parents ‘What do you think of the hospital closest to you?’, while I asked students ‘What do you and your family think of the hospital closest to you?’ For the younger students I led into this question by asking whether they had ever been to hospital, and if they had been to the hospital in the town closest to them. I asked participants about the Royal Flying Doctor Service in the same way, with ‘hospital’ replaced by ‘Royal Flying Doctor Service’ in the interview question.

There were around ten small hospitals, a couple with only outpatient facilities, and one main hospital in the main school catchment area. Patients requiring health services not available in their local town were transferred to the main hospital, which was located in the outback centre where the main school was based. Patients requiring medical care not offered by the region’s main hospital were referred to major centres. When participants were asked about their local hospital some also spoke about the ‘region’s main hospital’, because often patients received care at both their local and the main hospital. The situation for the pilot school catchment area was similar.

Students’ fears

Some children can be particularly nervous about going to hospital. Frightening and distressing experiences, including poor experiences with treatment or hospitalisation, can

have an impact on attitudes to health care (Hill et al., 2011, p.78). The *Standards for the care of children and adolescents in health services in Australia* (College of Physicians, 2008) was developed to ensure that quality care is provided to paediatric patients in an environment that is safe and appropriate for the age and stage of development of the child or adolescent patient. Many rural and remote health services, however, do not have the material or staff resources to meet some of the standards, and this could make negative experiences more likely to occur. Furthermore, in metropolitan centres there are also other systems in place for children at hospital to minimise or eliminate any fear, such as play therapy programs and clown doctors (Lavelle, 2011; Humour Foundation, 2011). Such programs are rarely available in rural and remote hospitals.

Focused or general fears of, and anxieties about, hospitals, health professionals, equipment or events related to these may have a negative influence on students' attitudes to health professional careers as potential career options, in addition to having an effect on attitudes to health care (Hill et al., 2011, p.78). Certainly this seems to have been the case for the governess in this study who had set out to become a nurse. She saw her emotional response to blood as a major reason why she did not become a nurse: 'I started the career path of being a nurse, except I couldn't handle the blood' (Wendy Martin).

In this study the expression of fear was initially a serendipitous finding in one of the first student interviews. I then asked other students questions to see if this fear was common. Over half the students expressed some anxiety related to health care, even those who at first appeared comfortable.

Some of the children appeared to be overwhelmed by what they perceived as the size of the healthcare facilities. For example, when I asked one Year 3 student who had recently seen the flying doctor plane to tell me about it, she said, 'Well, it was a very big plane and I felt a bit worried' (Belle York, initial interview). Another student perceived their local rural hospital, small by most standards, in terms of its forbidding size: 'Our closest hospital is the Kellador Hospital and it's a big place' (Tony Torrens, Year 2, initial interview).

The fear of the unknown appeared to be another factor contributing to the apprehension expressed by students. For example, some children were scared when they went to a hospital because they had not been there before. My interview with Year 1 student Leila Carter illustrates this. However, like some of the other students, Leila did not freely express her anxiety. A number of exchanges were necessary before she revealed her fear.

Interviewer: Have you been to a hospital?

Student: Yes.

Interviewer: What did you think about that?

Student: Good.

Interviewer: Can you tell me why it was good?

Student: Because you get medicine.

Interviewer: Yes, and how was that good? Can you tell me just a little bit more?

Student: I was scared.

Interviewer: Oh, were you. Do you know what, there are a lot of children who are scared of hospital. Can you help me by telling me what made you feel scared?

Student: I haven't been to the hospital before.

Interviewer: Was it because it was new, or were you worried about what was going to happen? Can you tell me a little bit more?

Student: I was worried about what was going to happen. (Leila Carter, initial interview)

This fear of the unknown included not knowing what was going to happen to them. One Year 2 student confided that 'I am scared at times because I'm worried about what the doctors are actually going to do' (Ursulla Naughton, initial interview). It also included not knowing the outcome of the illness or injury. This also involved being 'nervous and sometimes sad' when visiting others in hospital because, as one student said, 'I just hope that the person would make it' (Aaron Inglewood, Year 5, initial interview).

Students also expressed concerns about medical competency, for example Ursulla Naughton, the Year 2 student quoted above:

Interviewer: What things worry you the most?

Student: Um, if the doctor makes a mistake and he can't fix it.

Interviewer: What other things worry you?

Student: If I'm really injured and the doctor can't fix it at all I could be really hurt. (Ursulla Naughton, initial interview)

In expressing these concerns Ursulla also suggests some occupational gender-role stereotyping, a topic already referred to earlier in this chapter and in Chapters 4 and 5.

There was evidence that knowledge and explanation can alleviate at least some of these fears. Fifi Ellis, the Year 7 student quoted on page 178 who was apprehensive about

blood, was an example of this. As another example, one of the students who had extensive exposure to health professionals through illness or injury in the family and who had a parent who was a health professional described her own transition, with experience, from being frightened to becoming comfortable in the healthcare setting. She spoke of being scared initially in general terms: ‘When I visited the first time I was a bit scared but I’ve been there a couple of times and they’re nice and they’re friendly and they look after you’ (Francis English, Year 6, initial interview).

She then continued in more specific terms; in particular, she spoke of her fear of needles:

Student: I needed stitches and like, I was really scared because I don’t really like needles very much.

Interviewer: Were you scared of the needle?

Student: A bit, but then I got used to it.

As another example, a Year 5 student at initial interview showed that she understood that the health careers were helpful, but said she was not interested in such a career because ‘I don’t really like all the medical stuff, like all the things that the doctors have—I’m not really interested in all those things’ (Krystal Innis, initial interview). When I explored this a little further it appeared that the reason she was not interested in ‘all the medical stuff’ was that she was scared. She revealed that whenever she went to the doctor’s she started shaking, and similarly when she went to the hospital. After the educational activities, she thought, when considering the health professional careers, ‘it probably would be interesting being one’, and was able to elaborate this further by explaining: ‘They get to learn about all the different parts of the body and how it all works’. The project’s educational activities appeared to give her enough knowledge to stop her fears from controlling her perception of these careers. She still did not see herself becoming a health professional, but now it was for a different reason: ‘I probably want to learn about different parts of the body like with being a vet and probably not with people though’.

Not all the students’ hospital experiences were apprehensive moments in their lives. For example, one student described how she was fascinated by ‘how they put plaster around people’s broken arms’ and the ‘different coloured plaster’ (Felicity Stanton, Year 1, initial interview) while accompanying her mother and grandmother to the hospital when her grandmother had a broken arm. Another student spoke about a laceration which required suturing, and an overnight stay in hospital. He seemed untroubled by his

experience, possibly because he thought the staff were 'kind because they gave me a sticker at the end for being brave' (Tony Torrens, Year 2, initial interview).

Students' other perceptions of hospital

The students expressed a variety of other perceptions of their local hospitals. Overall they expressed more negative than positive perceptions. The similarity between their perceptions of the hospitals and their perceptions of health careers is interesting.

Two students who talked about the region's main hospital reported how busy it was: 'I think it is very busy and very noisy and there is a lot of stuff going on and stuff like that' (Isis Kallagher, Year 5, initial interview), while two other students talked about how quiet they thought the hospital closest to them was. One of these students went on to say how boring it would be to work there: 'The hospital is really quiet and um I think, like if you had to work there, even though there is a lot of work there, the atmosphere is very boring' (Kristy Grange, Year 9, initial interview). Some students perceived that the facilities at their closest hospital were limited. For instance, one girl said:

They don't have as many facilities as Veneta hospital as they are that far away from the big city, but they have all the basic beds and all the basic things that you need in a hospital and that's it. (Francis English, Year 6, initial interview)

Three other students commented on the shortage of staff and long waiting times; for example:

Interviewer: What do you think about the hospital that you've been to?

Student: That they are a bit understaffed.

Interviewer: What has given you that impression or what has made you say that?

Student: Sometimes it takes a while to see you. (Brian Inglewood, Year 7, initial interview)

The shortage of health professionals resulted in long waiting times for patients and heavy workloads for health professionals remaining in the area, a situation described succinctly by a Year 7 student: 'They need help so that people aren't waiting so long' (Fifi Ellis, initial interview).

The only student who spoke positively about the helping aspect of hospitals when considering their local hospital was one of the few students who had a health professional occupation among a number of career aspirations at initial interview:

Interviewer: What did you think about that hospital?

Student: I thought that it was pretty good because everyone was helping and trying to help other people, and they were really busy helping other people, but I didn't mind because I knew they had to do their job and look after people. (Ursulla Naughton, initial interview)

One of the teachers at the pilot school considered that students might perceive health professions as uninspiring careers because of these negative perceptions, such as the heavy workload:

I think a lot of kids don't really find that an attractive option because the doctors are always swamped ... it takes three weeks to get an appointment so the kids develop the mentality that it is an over-stressful job a lot of the time. (Regan, pilot study)

Parents' perceptions of their local hospital

Parents expressed views that focused on the limitations of the hospitals in the school catchment area. Although I asked about the hospital closest to them, they tended also to speak about the region's main hospital, which they referred to in different ways such as 'the closest big hospital'. Two parents expressed concerns about physical aspects: 'Our local hospital really does need a major upgrade' (Tia Innis, initial interview). However, the most prominent concern was with the standard of treatment provided; as one parent reported, 'we've had a lot of cases where the medical standard has not been up to scratch'. Concerned, she went on to say: 'I personally would not let any operation take place on our children or our family in the hospital closest to us. In our closest big hospital, I would be very dubious' (Illis Torrens, initial interview).

Some parents appeared to be caught between wanting to voice their concerns and not wanting to seem ungrateful for the service. For example, one began hesitantly with 'Um it is good to have it there. It is better than not having it but ...' However, still caught between wanting to voice her concerns and not wishing to seem critical, she managed to add 'if there is anything serious you would have to go further' (Zara Zip, initial interview). In emergencies, when there was not time to 'go further', these concerns were quite serious.

In general there was not a feeling of confidence or trust in the hospital service they had access to: 'I know that most properties that I've worked on people don't really like to go. They don't really trust the [region's main hospital] system at all' (Bernice Nissan, initial interview). Parents spoke of the high proportion of temporary staff, recruited from all over the world, and the negative effect this had on other staff—'A lot of agency staff ... it makes it less stable for the other nurses on the ward'—and the negative effect on

patient care—‘I don’t think the continuity of care is there or the necessary care level’ (Beatrix York, initial interview).

There were also concerns about who made the decisions in health:

There are people in positions of management that know very little about nursing or medicine. That’s not positive as it is such a practical field. Then sometimes those areas that are really important are missed out because the money is directed to other areas. (Brittany English, initial interview)

This parent also perceived deficiencies in how management recruited staff:

‘Positions become vacant and it is important to fill them, put backsides on seats because it looks good and not a lot of thought is put into why the person is given the position’ (Brittany English, initial interview).

Finally, some parents talked about the large workloads of some health professionals:

‘There is only one doctor doing a huge area’ (Beatrix York, initial interview).

The positive comments were less frequent, and overshadowed by concerns. For example, one parent of four children said:

I’ve been very lucky with all my dealings but they [the children] hear stories from other people and ah, in general, we have older relations that ... we’ve tried to get them to move to us so we could care for them rather than they being on their own and it has always been the medical side of things that has turned them away. They feel they can’t access enough medical support up here to warrant them coming and living with us. Nothing to do with the fact that we live away from town but the nearest town doesn’t have what they need so they hear that. (Elise Kallagher, initial interview)

In Chapters 4 and 5, the importance of conversations with adults as a source for learning about careers was identified. This parent signals the negative image of hospitals that was projected to her children and, therefore, possibly other students of the school. Such images are likely to make the health professions uninspiring for the students.

I introduced this section by explaining why I was interested in what parents thought about the hospital closest to them. Parents’ views about their closest hospital and the main hospital in the region are likely to come into play as students are forming impressions about life’s possibilities in their environment; these impressions are likely to then shape the informational and emotional landscapes on which students begin to imagine possible and desirable careers. It is hard to imagine that students are not exposed to at least some of their parents’ negative perceptions of the hospitals, or that these

perceptions would not be inhibitors in the pathway between the students and the health professions.

Teachers' perceptions of their closest hospital

The teachers expressed a mixture of positive and negative views about their closest hospital, with more positive views overall than parents. The region's main hospital was in the outback centre where the main school base was located, and was thus the closest hospital for the distance education teachers. Some of the positive views came from teachers who referred to private general practitioners (GPs) providing outpatient care at their surgeries and inpatient care at the hospital.

Some of the positive views were short-term:

I've only been here six months and I haven't actually been there [to the hospital] yet so I don't know. I've just been to a local GP and he was very good. I was very happy with him. (Mary Gareth, initial interview)

Others took a more long-term positive view:

Interviewer: What do you think about your local hospital?

Teacher: Great. Well, we've had all our children here. We had great stuff with that. We were very fortunate we had the same GP for all of our children over nine years. (Bree Norton, initial interview)

Some teachers' comments implied that they perceived health careers, and perhaps especially rural health careers, as high stress. For instance, when one teacher talked informally about the GP referred to above her expressed perception was that 'burn-out' influenced his decision to relocate to a major city.

Teachers, like parents, described staffing as one of the major problems with the hospital: 'The problem is the staffing. This is a huge issue' (Karen Neal, initial interview). The teachers were also grateful for the availability of the hospital, but were concerned with how it was staffed and how this affected patient care:

Overall, ah I think it [the hospital] is excellent for this area, I'd hate to think what it would be like without it. I have issues with agency nurses and the fact that it breaks down a consistency in nursing in the hospital here, including consistency of information to the patient. (Ester Campbell, initial interview)

I cannot explain why more teachers than parents thought positively about their hospital. Their easy access to the region's main hospital (and main airport, which provided daily flights to metropolitan centres with tertiary hospitals) may have

contributed to this difference. Interestingly, Bernadette Lyon, the parent who lived in the town where the school was located, had a view of the hospital that matched those of the teachers rather than other parents – ‘our family has had very good experiences with the local hospital’—while the governess, who was listed in the teachers’ group but lived remotely, saw her closest hospital in much the same way as most parents living remotely:

I think it is extremely understaffed. Yes. It lacks, mainly doctors with experience, a lot of medical staff. There is no full-time physios, occupational therapists or speech therapists. It has only been in the last 12 months that they have got a private doctor that you can go and see in an emergency. I have a lot of different views, you know a lot of their equipment isn’t up to date. (Wendy Martin, initial interview)

Here the governess mentioned allied health professionals only to comment on their relative absence, which may indicate why parents and teachers did not mention this group of health professionals in their perceptions. Parents and teachers only mentioned doctors and nurses when they spoke about specific categories of hospital staff, which may have been a silent expression of the limited spectrum of health professionals providing care in their region and familiar to them. Later in this chapter I look in more detail at recurrent themes in their expressed views of the doctors and nurses.

Participants’ perceptions of the Royal Flying Doctor Service

Parents and teachers

The teachers and parents held a positive perception of the Royal Flying Doctor Service, except for one parent. This contrasts with their perception of the hospitals.

Parents. The parents mostly spoke from personal experience. They talked positively about both the clinical service provided and how they as clients were treated by the service:

Interviewer: What do you think of the Royal Flying Doctor Service?

Parent: Great ... I think it is absolutely terrific. They’ve helped us out a few times, most recently last night. I have found them to be very, very helpful and very good to come out and help us. (Beatrix York, initial interview)

Parent: I think they are absolutely wonderful and I think they need a medal. They have got us out of so many things here where someone has been badly injured and I think they are absolutely wonderful. (Illis Torrens, initial interview)

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Parent: They have treated us beautifully at this end and have overlooked some of the gaffes we've made in monitoring certain things in the medical chest and very helpful in trying to get right diagnosis made over the phone. (Sally Orand, initial interview)

They were also aware that without the service lives would be lost.

The one parent who did not speak positively of the Royal Flying Doctor Service described a single 'bad experience.' She did not generalise her perception to the Royal Flying Doctor Service as a whole:

Interviewer: What do you think of the Royal Flying Doctor Service?

Um, I had a bad experience. We had an accident out on the highway here where a car was flipped over ... There were four occupants. Of those four occupants two were fairly bad. That accident happened at 6 in the morning, the police were there by 7, I was on site by 7.30, 8, the police notified me as it was near our property. The ambulance was there by 8 o'clock. Two badly hurt people were not in [regional centre] until 3 o'clock. Um, the bush ambulance should be compatible with the flying doctor. Stretchers were different. When we got there they had one of these badly hurt people on the stretcher of the ambulance and had to move him, with suspected spinal injuries, from the ambulance stretcher onto the flying doctor stretcher. And then the flying doctor stretcher isn't compatible with the ambulance stretcher so he is being held on the ambulance stretcher with only one strap with spinal injuries and he is rocking back and forward on this stretcher. The flying doctor stretcher would not fit in the ambulance. He got jammed. He started crashing. It was a nightmare. (Elise Kallagher, initial interview)

It is not certain from this transcript whether the Royal Flying Doctor Service was called immediately or only after the ambulance personnel had assessed the severity of the injuries. However, what is evident is that the problem was an equipment problem—the ambulance and Royal Flying Doctor Service stretchers were not interchangeable—which caused extreme difficulties for the injured and all those trying to help. It was not a general criticism of the Royal Flying Doctor Service thus reinforcing the view that overall parents held positive perceptions of the service.

Teachers. The teachers drew in three perspectives when they spoke about the Royal Flying Doctor Service. First, they talked about the service from the perspective of their connection with the families living remotely on properties:

I think it is life-saving. Every week here at school you will hear of another family which has had to use it so I think it is a very, very valuable service and I think it is a very admired service. (Mary Gareth, initial interview)

Second, the long-term principal mentioned the original connection between the school and the Royal Flying Doctor Service when both were located on the same premises.

Finally, a few teachers knew Royal Flying Doctor Service staff personally and gave their insight into the service from this perspective. In contrast, none of the teachers indicated a connection or familiarity with any of the hospital staff. This suggests that short-term employment models, used extensively by the region's main hospital, possibly minimised the presence and integration of hospital staff as visible role models in the wider community. For instance, one teacher spoke of the passion and devotion the Royal Flying Doctor Service staff she knew seemed to have for their job. She contrasted this to how she perceived the situation at the hospital, which she describes as 'something different'. While it is not made crystal clear, she seems to be suggesting that the high turnover of staff itself interferes with staff stability, enjoyment and dedication at the hospital:

The one thing that I could say about the flying doctor is people who tend to be with the flying doctors enjoy it so much I think it is more stable. And there is this thing about if you want to be a pilot with the flying doctor, for example, you have to wait until someone dies to get a job. I think it is a job where people love doing what they do. Whereas in the hospital we have something different because the turnover of people in our hospital is frequent. (Louise Gordon, initial interview)

Contrast between perceptions of the Royal Flying Doctor Service and perceptions of hospitals. While it is beyond the scope of this thesis to analyse the differences in the overall perceptions of the hospitals compared to the Royal Flying Doctor Service, it is interesting to note that some participants raised the issue of financial remuneration. One teacher indicated that pay for the Royal Flying Doctor medical staff was less than that for health staff working elsewhere:

I think it [the Royal Flying Doctor Service] is great. They offer a good service which I think is important to do. I hear that they have finally given the doctors a pay rise. They were earning a lot less than others four or five years ago. (Bree Norton, initial interview)

In contrast, temporary staff at the hospital were considered to be well remunerated, at rates higher than permanent hospital personnel doing the same job. This pay

discrepancy was said to generate tensions between staff members, and feelings among local permanent staff that they were not valued as much by 'the hospital system'. Furthermore, given that the permanent health staff inevitably carried the continuity of care workload, filled roster gaps and took on extra workloads when positions were not filled, and always had to work in the context of staff instability, with the constant 'comings and goings' of colleagues who had variable clinical and English language skills, it is easy to understand how for local residents a position at the hospital may not be held in high regard. One parent who was also a health professional alluded to some of these issues:

Agency staff are paid a lot of money to come to these places and often it is triple the amount that the permanent person is on and that creates a little bit of unrest among staff persons who are on a certain amount of money an hour and they are working with someone with 15, 20 years less experience than them and they're on three times the amount of money. So lots of things can create problems. (Brittany English, initial interview)

Remuneration for health professionals was also referred to by other parents. Elise Kallagher compared a health professional career with a local position at the mines. She perceived that even unskilled employment at the mines provided better pay than health professional careers. She appeared to question the value of a university education for these students (page 169). Although it was not explicitly stated, she is likely to be considering here the costs associated with going away to university for these rural and remote living students. In short, in context, she appears to be asking: *Why would* someone become a health professional? 'If we are not paying our [health] staff the right amount, like nursing staff etc, then yeah, the government has to turn around and look at that and put the word out' (Elise Kallagher, initial interview).

Students

A third of the children were not familiar enough with the Royal Flying Doctor Service to be able to speak about it. Most of the children who knew about the service spoke positively of it. These children mostly spoke from first-hand experience, either as a patient needing retrieval or clinic care, or from observation of another person on their property needing retrieval:

Well, I've had to be flown out a couple of times and it is very good that they [the Royal Flying Doctor Service] can just come and pick you up and take you to the hospital where you [need to go]. (Brian Inglewood, Year 7, initial interview)

The students seemed to understand the helping aspect of the service, and particularly identified that it helped patients in circumstances like their own—‘Good because they help the people on stations if they aren’t real close to town.’

Earlier in this chapter I highlighted the likely influence parents’ perceptions would have on students’ perceptions. One of the few students who had a negative perception of the Royal Flying Doctor Service was Kelly Kallagher, whose mother’s ‘bad experience’ with the service was reported on page 188. Kelly had this to say at initial interview about a job with the Royal Flying Doctor Service:

With the flying doctor it would sort of be hard work and that ... when you get the call you’ve got to start up the plane, check you’ve got everything, check the fuel, and then you’ve got to fly to the place, unload everything, because we had them out here and they had to call us to help them get to the place, then you’ve got to unload everything onto a vehicle and get to the place, then you’ve got to load the people onto the vehicle to get to the plane and then you’ve got to go to the hospital and then you’ve got to clean up the plane and that. (Kelly Kallagher, Year 6, initial interview)

There is a noticeable similarity between Kelly’s perception of the Royal Flying Doctor Service and his mother’s perception. In addition, he expressed detailed appreciation of the number of tasks that make up the work of the Royal Flying Doctor Service, which contrasts with the almost complete absence of knowledge most students displayed about health professional tasks.

Teachers’ and parents’ perceptions of overseas-trained doctors

As I showed in Chapter 2, both federal and state governments in Australia have recruited overseas-trained health professionals as one strategy to provide healthcare staff in rural and remote areas. Some parents and teachers talked about the overseas-trained health professionals when providing their perception of the hospital. They spoke specifically about these doctors in terms of both how difficult working in a foreign country must be for doctors, and how difficult the situation was for patients and other staff. One parent offered insights into some of the hindrances faced by overseas-trained doctors working in rural and remote Australia:

It is also very difficult for people who are from a different country and they don’t speak very good English when they come to places like this because they don’t have the contacts other doctors have already established in hospitals. So it takes them twice as long to get things done and they find that very frustrating. (Brittany English, initial interview)

PERCEPTIONS AND ASPIRATIONS

One of the teachers gave a further glimpse into some of the bilateral challenges:

We've had some years when a lot of male doctors, who came from India and Pakistan and places like that, and when you went in as an emergency patient I did feel that they couldn't understand me and I couldn't understand them and at one point I actually asked for another doctor. I had to go outside and wait for another doctor who I could speak to and who could understand me because I just felt that I wasn't getting anywhere with the one that I had. (Louise Gordon, initial interview)

This teacher was at the main outback centre where, as she described, it was possible to be seen by another doctor. These concerns were exacerbated for patients and doctors in smaller rural and remote centres, where there may only be one doctor for hundreds of kilometres:

We were really grateful for Dr Barry because he spoke really good English and he kept his skills up-to-date and he was always away on his days off upskilling and stuff. Whereas at the moment we have a guy from Pakistan so um ... and some of the oldies can't understand him and oh! It's an emergency kind of place really, yeah. (Kathy Carter, initial interview)

The relevance of the overseas recruitment strategy to this study—exploring pathways between students living in rural and remote Australia and health professional careers—lies with how the community perceives these careers, and any possible influence this perception may have on students imagining themselves in such positions in adult life. For example, a teacher in the pilot study suggested that the extensive use of overseas staff gave students a silent message that these careers were not available to locals like themselves:

And lots of our doctors out here come from overseas, so whenever the kids come in [to the school base] a lot of the time they are exposed to doctors who come from overseas. So they sort of think, 'oh well that's where that industry is going.' (Regan, pilot study)

Summary

Students considered a wide range of occupations among their career choices. Nevertheless, working on the land and/or with animals were the most common aspirations at initial interview. A health career was only considered by two students as one of their career options, for very different reasons—one because this was what was role-modelled by her mother, the other because it would provide a qualification that could

be used in rural areas. For most students, it was real experience and flesh exposure that sparked interest in a career.

The majority of students planned to complete Year 12, and appeared to understand the relevance of school to adult life.

Parents and teachers envisaged that most students would like to be working on the land as adults. They thought this was particularly likely for the boys, with some doing an apprenticeship or other training relevant to working on the land first. In general, they attributed this to exposure, role modelling, work experience and the students' love for the bush. For these students, in general, a job on a cattle property was also relatively easy to access. While clearly it is inappropriate to place too much weight on children's responses about possible career directions at this age, it was perhaps of some significance that fewer students than parents or teachers indicated careers on the land.

The parents wanted their children to be happy and financially secure in their chosen career. Although most parents believed one or more of their children would return to work on the land, many really wanted them to do an apprenticeship, other training or degree first. Not only would this training benefit work on the land, parents also believed it would provide security—for example, an alternative income to balance the vulnerability of the rural industry to uncontrollable external factors—and be something they could give back to the community. The parents explicitly stated that they avoided 'pressuring' their children to return to the property to work; consistent with this, few of the children said they felt their parents expected them to return to work on the property.

Students expressed an overall low perception of, and little interest in, the health professional occupations at initial interview. Similarly, parents and teachers mostly talked about why the students would *not* become health professionals when asked if they thought any of the students at the school would do so. They cited the lack of exposure—at home, at school, from health professionals or through promotion—that made it difficult for these students to aspire to a health professional career. The students' lack of exposure to information about health professional careers contrasted with their exposure to role modelling, information, work experience and passion for working on the land.

Parents and teachers also mentioned these students' easy access to careers visible in their districts, such as working on the land or in the mines, and the contrast with their more difficult access to health professional courses at distant universities. Some perceived that tertiary education for a health career incurred considerable costs for a profession that may not provide financial advantage over other jobs available locally, including those requiring little training. When parents and teachers spoke about a couple

of students possibly going on to become health professionals, they mostly spoke of girls, who they believed might go on to become nurses. Around half the parents seemed to view the health professions as being in the female domain. The students, in general, did not express similar occupational gender stereotyping. Overall parents and teachers thought more students might go on to health professional careers if, for example, they were provided with education about these careers.

I was interested in participants' perceptions of their local hospitals and the Royal Flying Doctor Service, as these are workplaces for health professionals in their districts. Parents, and half the teachers, held negative views of their local hospitals, with apprehension about the treatment provided, although they expressed appreciation of some individual doctors. They were concerned about the extensive use of short-term locum or agency staff from many parts of Australia and the world, and the effect this had on continuity of patient care and on permanent staff. This was spoken about in negative terms, and there was a suggestion that it contributed to less than positive images of the local hospital and of the health professional careers. One long-term teacher believed that the widespread use of overseas staff gave the students a silent message that this was not a career for them. Parents and teachers had higher regard for the Royal Flying Doctor Service, which, they reported, had long-term staff.

Over half the students expressed anxiety, apprehension and genuine fear of a variety of elements in the health setting. Some of these emotions were focused—'I don't like blood'—while others were general. It is not possible to say whether these emotions were more prevalent in these children than they would be in matched children living in metropolitan areas, nor is it possible to identify whether any of these emotions relate to perceptions the children had heard expressed of health services in rural and remote areas. However, it is possible to imagine that these emotions negatively influenced students' perception of health professional careers as possible career options for them, as had been the case for the governess who left nursing (page 180). The student interviews show that there was some alleviation of these fears with education.

In this study there was a strong sense of a shift in attitude towards the health professional careers for many of the rural students following exposure to multi-dimensional delivery of information about these careers. When this data is reviewed in the context of the literature review, the results tentatively imply that provision of early career information raises consciousness of, and affinity for, health professional careers. However, these results must be interpreted in the context of other factors that contribute to final career choice. In particular, the literature review makes it clear that further government support would be needed for these students throughout their primary,

secondary and tertiary education to allow such aspirations to become realities (Alloway et al., 2004; Alston & Kent, 2003; Bradley et al., 2008; Cripps, 2011; HREOC, 2000a, 2000b; James et al., 1999; Marks et al., 2000; McMahon & Rixon, 2007).

Field Code Changed

Chapter 7: Conclusion

This research addressed the relationship between distance education students living in rural and remote Australia, and health professional careers. The severe shortage of health professionals in rural and remote Australia, the relatively poor health of people living in these areas, and research indicating that students living in these areas offer the greatest hope of improving this shortage in the future provided the fuel to initiate the project.

The literature suggests that students who grow up in rural and remote areas offer the greatest hope for long-term solutions to the rural and remote health professional shortage (Hensel et al., 2007; Hoyal, 1994; Hughes et al., 2005; Humphreys et al., 2009; Murray & Wronski, 2006; NRHA, 2005; Quinlivan et al., 2010; Sen Gupta et al., 2007; Strasser, 1992; Wilkinson et al., 2000). However, entrance to almost all health professional careers requires a tertiary education course. The relatively small number of rural and remote students who access and participate in tertiary education fell further in the five years to 2007 (Bradley et al., 2008), and has remained small compared to participation rates for students raised in the city (Department of Industry, Innovation, Science, Research and Tertiary Education, 2011). This project aimed to contribute to sustainable solutions to the severe chronic shortage of health professionals in rural and remote Australia and to widen the career choices of students in these areas. In doing so, it uncovered a complex disconnectedness between students who live in rural and remote Australia and study by distance education, and health professional careers. Many of the factors inhibiting these students' potential to become long-term rural health professionals are also likely to inhibit the potential of students who live in the towns of rural and remote Australia and attend conventional schools.

Although limited, this research tentatively suggests that the provision of carefully planned early career information could be significant in developing positive dispositions towards health professional careers, and in doing so could contribute to solutions to the health professional shortage while widening students' career choices. This education should, ideally, include those involved in influencing students' career choices. It appears particularly important in the absence of actual occupational role models in the community. As the *Australian blueprint for career development* (MYCEETYA, 2009) indicates, such information might best be delivered within a more comprehensive and systematic career education framework.

Nevertheless, there is a very long road between being a student living in rural and remote Australia and becoming a rural health professional. As this study's data and the

literature review indicate, many factors contribute to final career choice. Without ongoing exposure to health professional career education, access to metropolitan standards of primary and secondary education, equality of access to health professional career training, and addressing the many issues associated with working permanently as a health professional in a rural and remote area, many rural and remote students will never have the opportunity to become rural health professionals.

The data also highlighted the self-perpetuating nature of the severe shortage of health professionals in rural and remote Australia, and the need for wide sweeping changes to achieve a long-term, stable rural health workforce. More research and action are needed. Without change, residents in these areas will continue to have poorer health and poorer access to fewer health services than those living in metropolitan Australia.

It is possible to conceptualise the road between these students and rural health professional careers in three steps.

- The first step involves the students aspiring to a health professional career, and issues related to this.
- The second step involves the students accessing, participating in and completing health professional career courses.
- The third step involves the recruitment and retention of health professionals with rural backgrounds in rural and remote areas of Australia.

The first step in the road—the students aspiring to a health professional career and issues related to this—has been a key focus of this study. Before students can aspire to a career, they must first know about that career. These students had limited knowledge of the diverse range of health professional careers at initial interview. Factors contributing to this limited knowledge appeared to be:

- the shortage of health professional role models in rural and remote Australia
- the families' geographic isolation
- the limited diversity of the parents' career pool
- the parents' and teachers' restricted knowledge of the range of careers in health
- the absence of conversations about health professional careers as possible career options, either in the home or with their teachers
- the very limited positive health professional career information in the curriculum materials.

The number of visible health professional role models in these students' communities was even smaller than the number of health professionals serving the communities, because short-term health professionals—fly-in-fly-out or drive-in-drive-

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out—were not visible role models out in the wider community. The students also did not have visible health professional student role models in their district, because the closest university was more than five hundred kilometres away. Moreover, visits by health professional student groups to some rural schools did not appear to have reached their communities or their school. So the students could not ‘see’ the road to a health professional career. Furthermore, teachers, parents and students agreed that the school provided little positive career information to make up for the environmental shortfall and to widen students’ career choices. This finding was reflective of my review of the set curriculum materials.

Students’ limited initial knowledge of the health professional careers was associated with negative perceptions of, and little aspiration towards, these careers. Other factors also probably shaped the students’ perceptions and aspirations. The shortage of health professionals in rural and remote Australia meant that health professionals still working in their areas were overworked, which was considered uninspiring. Health professionals also did not appear to promote their professions to students. Recruitment of health professionals from all over the world possibly interfered with local students perceiving these careers as potential careers for locals like themselves. In addition, over half the students expressed focused or general fears of, and anxieties about, hospitals, health professionals, doctors’ surgeries or equipment, or events related to these. These fears and anxieties may have a critical and enduring negative influence on attitudes to health professional careers as potential career options (Hill et al., 2011, p.78). Hospitals are common workplaces for health professionals. Overall, parents and students did not have a high opinion of the hospitals they knew. Teachers’ perceptions of their local hospital were mixed. Families and teachers nevertheless held positive views of the Royal Flying Doctor Service, and of individual health professionals. Negative portrayals of health professionals and their working conditions in the media and curriculum materials may have a disproportionate influence on these students, since they had limited positive real life exposure to give a balanced view. Finally, some of the participants shared the perception that it was necessary to be ‘brainy’ to be a health professional. It is difficult to imagine that these perceptions would not negatively influence students’ interest in health professional careers.

Three students in this study had extensive exposure to health professionals due to family illness or injury and/or their mother being a health professional. These students had greater initial awareness of the diverse range of health professionals. This greater knowledge was associated with a more positive perception of, and interest in, the health

professional careers compared to other students. It is worth mentioning here that much of their exposure occurred outside their rural and remote area.

The second step on the road for students living in rural and remote Australia aspiring to a health professional career is accessing, participating in and completing a health professional career course at university. The difficulties involved in providing students in rural and remote Australia with early childhood, primary and secondary education of the standard and variety available to city students (Alloway et al., 2004; Australian Institute of Family Studies, 2011; Cripps, 2011; HREOC, 2000a, 2000b) prevents many students from achieving the necessary subject foundations and tertiary entrance scores required for acceptance, and success, in health professional university courses (Heaney, 1998). For this study's students, the closest university was at least five hundred kilometres away. Their access to university contrasts with the access of many students living in a university city. The significant family, social, cultural, personal and financial cost associated with sending a student from rural and remote Australia to a distant university has been previously documented (Alloway et al., 2004; AIHW, 2011; Cripps, 2011). This can inhibit the development and realisation of a student's aspiration to a health professional career. The three young mothers at the school who said they had always wanted to be nurses but had never had the opportunity (page 119) are likely to be evidence of this. Furthermore, the qualities that make these students likely to return to work in the bush could also prevent them from wanting to relocate to a distant university in the city or from succeeding at university. These qualities include, among others, a passion for the bush, a strong bond with family and friends in rural areas, a sense of belonging in a rural area, and an enjoyment of the after hours activities of rural areas. Teachers believed that because most rural students spent their secondary years at boarding school, many just wanted to come home after completion of school.

The third and final step involves recruitment and retention of health professionals with a rural background in rural areas. The professional challenges for health professionals working in rural and remote areas, over and above those for colleagues working in the city, include professional isolation, generally higher workloads and on-call loads, and difficulty getting time off for recreation or continued professional development—challenges which may have been made more difficult in recent years because of their association with an increased risk of litigation (MacLennan & Spencer, 2002). In addition, health professionals living and working long-term in rural and remote areas have to manage in an unstable work environment characterised by comings and goings of staff (Lenthall et al., 2009; Wakerman et al., 2005; Wakerman et al., 2012) who bring variable language and clinical skills; have to carry the continuity of patient care in

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areas where the incidence of chronic disease is high; have to work roster gaps when vacant positions are not filled; and feel undervalued by the system, partly because temporary staff are paid at higher rates than local permanent staff. These conditions were reflected in participants' perceptions. Participants commented on the relatively high pay rates of temporary staff, with one participant stating that some temporary staff received hourly remuneration up to three times that of permanent staff. Participants also spoke about the physical limitations of the buildings and equipment at their hospitals. Some parents and teachers also indicated that being a rural health professional may not be a good choice given the problems: 'I don't know if some of them [rural health professions] are very attractive careers in a suing world'.

It may be more difficult for the current generation than for previous generations of students living in rural and remote Australia and studying by distance education to travel the road to a rural health professional career. The physical separation of School of the Air bases from Royal Flying Doctor bases has diminished their exposure to Royal Flying Doctor health professional role models through their schooling. The change from local hospital-based to distant university-based nursing education has removed permanent nursing student role models from their communities, and reduced the number of registered nursing role models familiar to local school students. The change has also reduced their access to training for a nursing career. The loss of free tertiary tuition, the lengthening of some health professional career courses and changes to government support for tertiary students has also reduced these students' accessibility to these careers. The worsening shortage of health professionals in rural and remote Australia, and the growth of litigation, have also made rural health professional positions less attractive. In contrast, in some rural areas role models, local training, jobs and work conditions in the mining industry have improved, and provide attractive career options.

These students' lack of initial connection with health careers contrasted with their connection with the agricultural industry, especially the beef industry. While students received little information or positive exposure to health professional careers in their daily lives, they received abundant and ongoing information, role modelling and work experience in the beef industry from early childhood. In contrast to their knowledge of the health professional careers, the parents were well informed, and most were passionate, about the beef industry and about living on the land. Teachers who had been with the schools for many years, and parents, reported that many past students, particularly boys, followed their parents into the beef industry. Many expected this cohort of students to do the same. Some parents also mentioned the mining industries, reflecting the recent improvements noted above, as attractive alternatives. In summary, the paucity

of positive role models, lack of local training, and variable work conditions in health may be making it difficult for rural health to compete against these other industries for student aspirations.

Hope for the future

Despite the issues, there were glimpses of opportunities that could clear the road between these students and health professional careers. For example, parents spoke about the vulnerability of rural industries to weather, market conditions and changes in legislation. A number aspired for their children to undertake training or further education after completing school to allow them to work in a skilled position. They believed these skills would provide something valuable for the community, and much needed security and additional income if their children chose to live and work on the land. A health professional career could meet these expectations. Although a quarter of the parents had reservations, most said they would try to support their child if they aspired to a health professional career.

After the educational activities

After the delivery of the multidimensional health professional educational activities, there was a shift in students' knowledge and perception of, and aspirations towards, health professional careers. Almost all the students in all the year levels appeared to have a greater awareness of the diverse range of careers in health. For some students the titles of positions appeared to cause a problem with their recall, but they tended to get around this on follow-up interview by describing what was involved in the career. More importantly, this increase in knowledge was associated with a positive shift in perceptions of, and enthusiasm for, these careers in most of the students. Although the extent of the shift varied, and responses from younger students were, of course, less elaborate, there was still this positive shift for most students. For many, the project opened the door to the world of health professionals and the health professions. This is best epitomised by the words of a Year 3 student already referred to:

Um ... people may not have thought that it [health professional careers] would be that good for them, but when they tried it, it's like, WOW!

When this study began, no distance education student had ever attended one of the state wide Health Careers in the Bush workshops (pp.4, 40) in the decade the workshops had been running. Two students attended as a direct result of this study.

CONCLUSION

Reflecting on the research design

The research used a number of tools to explore the relationship between the students and the health professions. Semi-structured qualitative interviews provided a telescope with which to see the participants' world in relation to the knowledge, perceptions and aspirations of the students in regard to health professional careers, before and after health professional career educational activities. Through the interviews with parents, teachers, governesses and students, a three-dimensional view of their world was produced. My observations of, and informal interactions with, participants, and a review of the set curriculum materials, completed the data collection. Career development theories in general, and Gottfredson's theory of career development in particular, provided the framework to justify providing health professional career education to primary students as young as five years old. This is in sharp contrast to the almost ubiquitous practice of directing career education at high school students only. The educational activities were created and modified according to participant input in a manner broadly reflecting action research. The self-reflective spirals of *plan*, *act*, *observe* and *reflect* moulded the activities to make them the best we could provide for these School of the Air students at the time. Multimodal delivery methods for the educational activities accommodated different learning styles and different family commitments. The whole study, including the educational activities and interviews, worked within the framework of the School of the Air system and its community, the James Cook University Ethics Committee, and the Department of Education.

Limitations

This project involved predominantly primary-level students living in rural and remote Australia, and enrolled at two schools of distance education. Given more resources, it would have been worthwhile to have interviewed more students, teachers, parents and governesses, and to have involved both schools in the health professional career educational activities.

The review of the curriculum materials was an integral part of the study. The curriculum materials included activity sheets, mathematics and LAC books produced by the education department, audiotapes and videotapes, and resource books. The accuracy of the quantitative review of the resource books, in contrast to the other materials, was limited, because the resource books were not uniform in font, format or page size. Nevertheless, an overall understanding of the availability and nature of the information about health professionals and the human body in the resource books was achieved.

What this project contributes to knowledge

Despite the limitations this research provides insight into the potential of encouraging young people from rural and remote areas to consider careers as health professionals. It also highlights inhibitors and facilitators which determine if this potential can become reality. In addition, the curriculum review provides new information about the health professional content which should be of interest to relevant education and health stake holders. Most importantly, the thesis argues that providing career education and associated learning opportunities for rural and remote students before and during the primary years, as well as including their parents and teachers, may make a significant contribution to sustainably addressing the poorer health, and the limited access to health services, of the people in these areas.

Where to from here

The literature review demonstrated that the shortage of health professionals in rural and remote Australia and the poor health of the people in these areas is a long standing problem. For over two decades, Australian and overseas studies have reported that health professionals who grew up in a rural or remote area are more likely than those from urban environments to return to work in a rural area after graduation. What is needed now is long-overdue action to address the findings of the research. As noted above, this thesis strongly suggests the need to open up education and other opportunities so more students from rural and remote Australia can go on to become health professionals. Career development theorists, including Gottfredson, argue that to be effective these opportunities must start before school age. Finally, these actions should be married with research to review and perfect the actions.

Without change people scattered through outback Australia will continue to suffer the inequity of poor health, poor access to health services and limited career options.

Glossary

Bush people (bush folk) Drawing on my own experiential knowledge I use these terms to describe members of rural communities. This accords with the way members of rural communities use these terms in very positive ways to describe themselves.

Governess A person (almost always a woman) employed specifically to supervise and guide children with their distance education curriculum at home on the property.

Grazier Australian owner of a large property on which sheep or cattle are raised (Moore, 2002).

Health professional and health care worker Terms used in this thesis to include, but not restricted to: nurses, dentists, doctors, physiotherapists, occupational therapists, speech pathologists, audiologists, dieticians, social workers, podiatrists, radiographers, pharmacists and medical laboratory scientists.

Health profession, health professional career and health career A vocation in which health professionals work. When discussing the health professions *career* and *occupation* are used interchangeably because many occupations in health involve ongoing study and advancement over many years.

Home tutor An adult who supervises the students doing their school lessons at home. The home tutor is usually either the children's parent (almost always the mother) or a governess.

Isolated Children's Parents' Association (ICPA) A voluntary, non-profit, apolitical parent body dedicated to ensuring that all Australian rural and remote students have equity of access to a continuing and appropriate education (Isolated Children's Parents' Association, 2011).

The ICPA's concerns encompass the education of children from early childhood through to tertiary education. Geographically isolated children may be educated in small rural schools, by distance education, by attend boarding schools or by boarding at hostels. After Year 12, students whose family home is in rural and remote Australia frequently must live away from home to access further education.

The association has over 4500 members, residing in the more remote parts of Australia, who all share the common concern of gaining access to education for their children and of the provision of services required to achieve this (Isolated

Children's Parents' Association, 2011). There are ICPA branches throughout rural and remote Australia.

'On air' or air lessons School of the Air lessons involving students listening to, interacting with and learning from a teacher who is located at a distant School of the Air base. Originally these lessons were delivered over two-way radio, but more recently the phone has been used for lessons at the two Schools of the Air involved in this project. If a student is 'on air' it means they are having a lesson with their teacher and classmates. A student may say, 'I heard that on air', meaning they heard about it during their air lesson.

Overseas trained doctors (OTDs) Doctors who grew up and did their primary medical training in another country.

Parents' and Citizens' (P & C) Association All state schools offer opportunities for parents to join a P & C Association. These associations are involved in a variety of school activities from policy to financial planning, as well as tuckshops, fundraising activities, school functions and out-of-school-hours care (Department of Education, Training and Employment, 2000).

Perception and attitude In this thesis these are not used in the technical sense, as they are in psychology, but in the broader everyday sense to imply how something is seen or regarded.

Remote This study uses the state's Department of Education definition of a remote area.

That is:

A person lives in a remote area if —

(a) the person's principal place of residence —

(i) is at least 16 km from the nearest applicable school; and

(ii) is at least 4.5 km from a school transport service approved by the chief executive (transport) or a public transport service to the nearest applicable school; or

(b) the person's principal place of residence —

(i) is at least 16 km from the nearest applicable school; and

(ii) is less than 4.5 km from a school transport service approved by the chief executive (transport) or a public transport service to the nearest applicable school; and

(iii) is —

(A) at least 56 km from the nearest applicable school using the route travelled by the transport service; or

(B) at least 3 hours traveling time a day from the nearest applicable school using the transport service. (*Queensland Education (General Provisions) Act 2006*, s 49)

School of the Air A form of education offered to school-age children who live too remotely to be able to access a regular school. It involves curriculum materials (such as home tutor guides, language and mathematics instruction papers and assignment or activity books, text resources, audiotapes, videos and digital videodiscs) and lessons with a teacher and a small number of classmates. These lessons usually take 30 to 45 minutes each day. They were originally conducted over two-way radio, but more recently have been conducted over the telephone. For the rest of the school day students work through the set curriculum materials under the supervision of their home tutor. In the school year there are also infrequent face-to-face days with teachers and classmates, and, more recently, some interaction using the internet.

School of the Air' is the institution; the mode of education it offers is generically referred to as **distance education**.

The bush Rural and remote areas of Australia away from the city.

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Appendix A: Pilot study interview question outline

Appendix A1: Interview question outline for students

These questions are an outline only.

The interview begins with a greeting, introduction, and information-gathering about grade, home, and distance to school.

Section 1

- 1 Have you thought about what you would like to do for a job when you grow up? If so, what do you think you would like to do?
- 2 What made you interested in that job?
- 3 What do you think you might like about the job of
- 4 Do you think there would be any training necessary to do the job of
- 5 What do you think that job might involve?

Section 2

- 1 Have you received any information at school yet about jobs you can do as an adult?
- 2 Where do students at your school get their information about jobs you can do as an adult?

Section 3

- 1 Health professionals, also called healthcare workers, look after people when they are sick. What sort of jobs can you think of that would belong in this category?
- 2 What do you think of those jobs? Would you be interested in one of those jobs? What made you think that?
- 3 Do you think any of the students at your school or class might be interested in one of the health professional jobs? Why do you think that?

Section 4

- 1 What do you think would be good ways to tell students at your school about all the different jobs in health?
- 2 What does your family think about your local hospital?
- 3 What does your family think about the Flying Doctor Service?

Thank you

Appendix A2: Interview question outline for parents

These questions are an outline only.

The interview begins with a greeting, confirmation of permission to audiotape the interview, and a brief review of the background to the study.

- 1 Tell me about where you live, and what you produce on your property.
- 2 How far are you from your children's school?
- 3 Tell me about your children. Do you have boys and girls? What grades are they in?
- 4 How long have your children been with distance education?
- 5 Are you their home tutor?
- 6 What do you think your children would like to do as adults? What has made you think that?
- 7 What would you honestly like your children to be doing when they grow up? Tell me about this.
- 8 How do you think the students at your children's school obtain their career information? Have they had any career information at school yet?
- 9 This study is looking at the health professions. Do you think many of the students at your school, or any of the students, would like to be health professionals?
- 10 Have any of the other health professions been mentioned that you are aware of?
- 11 Do you think boys and girls would be interested?
- 12 What do you think would be good ways to introduce information for the students at your children's school about the health careers, given the distance education setting?
- 13 What does your family, in general, think of the local hospital?
- 14 What does your family, in general, think of the Flying Doctor Service?

Thank you

Appendix A3: Interview question outline for teachers and governesses

These questions are an outline only.

The interview begins with a greeting, confirmation of permission to audiotape the interview, and a brief review of the background to the study.

- 1 How long have you been teaching?
- 2 How long have you been teaching distance education?
- 3 What grades do you teach?
- 4 What do you think the students you teach will be doing in 10 or 15 years' time?
What makes you think that?
- 5 What do you think the students you teach would like to do as adults? What has made you think that?

- 6 How do you think the students at your school obtain their career information? Have they had any career information at school yet?
- 7 This study is looking at the health professions. Do you think any of the students would like to be health professionals?
- 8 Have any of the other health professions been mentioned that you are aware of?
- 9 Do you think boys and girls would be interested?
- 10 What do you think would be good ways to introduce information to the students at your school about the health careers, given the distance education setting?
- 11 What do the families at your school, in general, think of the local hospital?
- 12 What do the families at your school, in general, think of the Flying Doctor Service?

Thank you

Appendix B: Main study interview question outline

Appendix B1: First interview question outline for students

Welcome and thank you for being part of this project. I am really interested in what School of the Air students have to say because you are a very special group of students. On the consent form you said it was all right for me to audiotape this interview so that we can keep an accurate record of what everyone thinks. If it is okay I will turn the tape on now. Is there anything you would like to ask me first? Please remember this is not a test and it's not school work; you are helping me by answering these questions.

Demographic section

- 1 What grade are you in now?
- 2 How long have you been with School of the Air?
- 3 What animals do you have on your property?
- 4 How far are you from [School of the Air base town] School of the Air?

General careers section

I am interested in what people from the bush are going to do when they leave school. Please remember to tell me what you really think—don't worry about what you think I want you to say.

- 1 What would you call the job your dad does?
- 2 What would you call the job your mum does?
- 3 How long are you going to stay at school?
- 4 How do you think your school work will help you as an adult?
- 5 What are you thinking about doing when you leave school?
- 6 Can you remember what made you interested in that job?
- 7 What will you need to do to become a?
- 8 What do you think you would do each day in that job?
- 9 What work do you think your mother would like you to do as an adult?
- 10 What work do you think your father would like you to do as an adult?
- 11 I know you are in primary school, but have you had any information about different jobs you could do as an adult? Where did you get that information from? Where else could you get information about jobs from?
- 12 Which jobs have you heard about?

Health professional careers section

- 1 Health professionals help look after people's health and care for people when they are sick. What sorts of jobs can you think of that belong in this category? Tell me as many as you can think of.

There are a lot of jobs involved in looking after people when they are sick. There are nurses, dentists, psychologists, physiotherapists, podiatrists, speech therapists, occupational therapists, pharmacists, pathology scientists, dieticians, research scientists ... and there are many, many different fields doctors can work in—the Flying Doctor Service is one of those fields. [I then went on to outline a number of these careers, being careful to pitch the talk to the participant's age and to keep the participant involved by making the discussion interactive.]

- 2 What do you honestly think about those jobs?
- 3 Can you see yourself doing any of those jobs? Can you tell me about this?
- 4 Tell me how do you think someone becomes a nurse. Tell me how you think someone becomes a dentist. Tell me how you think someone becomes a doctor. Tell me how someone becomes a
- 5 Do you think there is any difference between which of these jobs boys can do and which girls can do?
- 6 Tell me what you think each of these might do in their day: nurse, dentist, doctor, pharmacist, physiotherapist, occupational therapist, speech therapist, radiologist, pathology scientist, social worker, podiatrist.
- 7 What do you and your family think about the hospital closest to you?
- 8 What do you feel when you visit a hospital?
- 9 What does your family think about the Flying Doctor Service? Have you ever been on the flying doctor plane or been to the flying doctor clinic?
- 10 If you were given the job of telling children at your school about all the jobs involved in looking after sick people—nurses, doctors, physiotherapists, dentists and so on—how would you do it?
- 11 How could we make these suggestions fun?

Appendix B2: First interview question outline for parents

First of all a big thank you for giving your time to this project. Would you like me to go over the aims of the study? Before I start the recording I need to confirm that you are happy for this interview to be recorded. Once I start the recorder I will try not to use your name, so I apologise if at any stage I sound a bit formal. In the write-up real names will not be used.

Demographic section

- 1 How would you describe to outsiders what you produce on your property?
- 2 How far are you from your children's school?
- 3 Can I please confirm with you what grades your children are in?
- 4 How long have your children been with distance education?
- 5 Are you their home tutor?

General careers section

- 1 What do you think each of your children would like to do as adults?
- 2 What has made you think that? What do you think has made them think of that?
When did they start to think of that?
- 3 What do you think each of your children will end up doing as adults?
- 4 What would you honestly like your children to be doing when they grow up? Tell me more about this.
- 5 What do you think your husband would like your children to do as adults?
- 6 How do you think the students at your children's school obtain their career information? Have they had any career information at school yet?

Health professional careers section

- 1 This study is about health professionals as you know. Tell me all of the different careers in the health professional category that you can think of.
- 2 How many years at university do you think it takes to become: a doctor, nurse, dentist, occupational therapist, physiotherapist?
- 3 Do you think many of the students at your school, or any of the students, would like to be health professionals? Why, or why not?
- 4 Have any of the other health professions been mentioned that you are aware of?
- 5 Do you think boys and girls would be interested?
- 6 If you were given the job of advising the education department on how to introduce information to the students at your children's school about the health careers, given the distance education setting, what would you say?
- 7 Thinking of the stages they would go through—primary school, secondary school, university and then working time—what other thoughts do you have about increasing the number of rural and remote students having the opportunity to become health professionals in rural Australia?
- 8 What would be your reaction if one of your children said they would like to be a health professional?

- 9 What does your family, in general, think of the local hospital?
- 10 What does your family, in general, think of the Flying Doctor Service?
- 11 Last question: is there anything else you would like to say on the topic?

Thank you

Appendix B3: First interview question outline for teachers and governesses

First of all, thank you for taking the time to be part of this project. To save time I will get straight into the questions. I just want to confirm that you are agreeable to my taping this interview. No real names will be used in writing up the report.

Orientation section

- 1 How long have you been teaching/governessing?
- 2 How long have you been a distance education teacher?
- 3 What grade do you teach?

General careers section

- 1 What do you think the children you teach *would like* to be doing in 10 years' time?
- 2 What do you think the children you teach *will* be doing in 10 years' time?
- 3 Where do you think the students at your school get their career information from?

Health professional careers section

- 1 Tell me all of the different jobs in the health professional category that you can think of.
- 2 If one of your students wished to become one of the following, what preparation and training would you tell them is required: nurse, dentist, doctor, pharmacist, physiotherapist, occupational therapist, speech therapist, radiologist, pathology scientist, social worker, podiatrist?
- 3 Do you think any of the students you teach would like to become health professionals?
- 4 Do you think any of your students will become health professionals?
- 5 If one of your students wanted to do one of the jobs we've just talked about, do you see any problems, in general, in them achieving that?
- 6 Why do you think some studies have found that there is little interest in the health professional careers among rural secondary students?
- 7 Would you like to see distance education students informed about the health professional careers?

- 8 If you were asked to inform the students at your children's school about the health professional careers, and you were passionate about it, how would you go about it, given the distance education setting and the time constraints on staff and families?
- 9 Do you have any other suggestions on how to make it possible for more students living in rural and remote Australia to go on to become health professionals?
- 10 What do you think about your local hospital?
- 11 What do you think about the Flying Doctor Service?
- 12 Is there anything you would like to say about the shortage of health professionals in rural and remote Australia?

Appendix B4: Follow-up interview question outline for students

Good morning. Thank you for taking the time to do this second interview. Before starting I need to confirm that you and your parent consent to this interview being taped. When you are ready we will start.

1. What did you get out of the project? I can remind you of the components of the project if necessary.
2. Thank you. Did you learn anything new from the project?
3. Thank you. What are you thinking of doing as a job when you grow up?
4. Thank you. Can you tell me as many different types of health professionals as you can think of?
5. Thank you that was a X (e.g. great) list. I'll tell you some of the other health professionals ...What do you think of those sorts of jobs?
6. Thank you. And if you couldn't do (the career choice identified by the student in question 3 above) when you grow up do any of those health professional jobs interest you? Which one would interest you? Why?
7. Is there anything else you would like to say about the project?

Appendix B5: Follow-up interview question outline for parents

Thank you for giving up your time to do this second interview. Can I please confirm with you that you agree to have this interview recorded. We can start when you are ready.

1. Have you gained anything from the health professional careers project?
2. Thank you. Do you think your children have gained anything out of the project?
3. Thank you. What influence, if any, has this project had on what your children think of the health professional careers?
4. Thank you. What influence, if any, has this project had on what your children would like to do for careers when they grow up?
5. Thank you. The project was a one off. What things do you think worked or made a bigger impression and what things did not appear to make an impression on the students?
6. Thank you. Do you have any thoughts about incorporating information about the diverse range of health professional careers intermittently or regularly into the distance education program for the students?
7. Have you had any further thoughts about what would be effective ways of exposing the children to different health professional careers through distance education?
8. Do you have any suggestions on how to increase the number of students from rural and remote Australia going on to become health professionals?

Appendix B6: Follow-up interview question outline for teachers and governesses

1. What, if anything, do you think the students gained from the project?
2. What, if anything, do you think the parents gained from the project?
3. What, if anything, have you gained from the project?
4. Do you think some parts of the project may have made a bigger impression than other parts?

5. What influence, if any, do you think this project may have on students' perception of health professional careers?
6. This project was a one off. Do you have any thoughts on what might be done on an intermittent or regular basis for remote distance education students to inform them about the health professional careers?
7. Thank you. Do you have any further thoughts on how to increase the number of students from rural and remote Australia who go on to become health professionals?

**Appendix C: Portrayals of health professionals and of the body
in LAC curriculum materials**

Table C1: Portrayals of health professionals and of the body in Year 3 LAC curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Activity sheets book	29	38	40	43	44	29	26	34	48	33	38	41	38	29	42	47	599
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
Activity book	52	47	48	50	51	55	51	55	58	59	62	50	60	63	47	53	861
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
Handwriting book*	–	19	17	14	19	21	20	15	15	17	–	15	13	15	15	11	226
Resource books	29	74	126	117	107	124	74	85	85	147	94	133	84	131	104	140	1654
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.0

* There was no mention of health professionals or the body in any of the handwriting books.

Table C2: Portrayals of health professions and of the body in Year 4 LAC curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Instruction paper	103	95	97	121	89	99	97	107	99	101	87	81	65	87	88	86	1502
refs to health professionals	0.0	0.0	0.3	0.0	3.6	1.1	0.7	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	7.7
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.3	0.0	3.6	1.1	0.7	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	7.7
refs to human body	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Activity book	25	31	19	31	33	33	35	33	18	33	33	35	19	31	39	17	465
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.1	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.1	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	3.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resources books	75	98	156	88	54	42	116	157	49	87	107	144	64	128	112	145	1622
refs to health professionals	0.0	0.0	2.7	2.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.7	0.0	8.1
positive	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
negative	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
neutral	0.0	0.0	1.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.7	0.0	5.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table C3: Portrayals of health professionals and of the body in Year 5 LAC curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Student guide	93	74	92	92	93	89	101	102	117	117	107	86	81	66	77	76	1463
refs to health professionals	0.0	0.0	0.0	0.0	0.0	2.5	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
neutral	0.0	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Assignment book	40	48	42	24	41	45	31	34	36	32	31	47	35	24	44*		554
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Resource books	100	176	87	76	100	96	–	116	143 [†]	80	114	188 [†]	219 [†]				1495
refs to health professionals	0.6	2.0	0.0	0.0	0.1	1.3	–	0.2	0.0	0.2	0.1	0.0	1.0				5.5
positive	0.0	0.0	0.0	0.0	0.0	0.5	–	0.0	0.0	0.0	0.0	0.0	0.0				0.5
negative	0.6	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.1	0.0	0.0	0.0				0.7
neutral	0.0	2.0	0.0	0.0	0.1	0.8	–	0.2	0.0	0.1	0.1	0.0	1.0				4.3
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0	0.0	0.1				0.1

* Same assignment book is used for units 15 and 16.

† Shared resource pack for units 9 and 10; units 13 and 14; and units 15 and 16.

Table C4: Portrayals of health professions and of the body in Year 6 LAC curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Instruction paper	69	46	73	63	72	91	125	111	75	83	105	128	113	129	101	129	1513
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Activity book	31	33	33	32	24	29	20	33	37	20	39	31	26	20	25	–	433
refs to health professionals	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	–	2.2
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	–	0.3
neutral	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	–	1.9
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0
Resource books	154	96	76	125	–	149	47	62	209	120	109	135	215	31	136	251	1915
refs to health professionals	0.0	0.0	0.0	2.5	–	0.0	0.0	0.0	2.0	1.9	0.0	1.2	0.0	0.0	0.3	0.4	8.3
positive	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
negative	0.0	0.0	0.0	0.1	–	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
neutral	0.0	0.0	0.0	2.4	–	0.0	0.0	0.0	2.0	1.9	0.0	1.2	0.0	0.0	0.1	0.3	7.9
refs to human body	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table C5: Portrayals of health professionals and of the body in Year 7 LAC curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	Totals
Instruction paper	79	119	129	125	159	98	129	149	139	93	114	–	1333
refs to health professionals	0.8	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	–	3.7
positive	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	–	0.2
negative	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.5
neutral	0.2	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	–	3.0
refs to human body	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	–	3.4
Assignment book	29	25	25	13	17	20	20	–	55	57	46	–	307
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	–	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	–	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	–	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	–	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	–	0.0
Student guide	35	42	29	54	47	53	61	56	57	53	58	–	545
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	–	0.2
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	–	0.2
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0
Resource books	144	160	110	179	108	136	188	76	111	144	56	–	1412
refs to health professionals	1.1	0.0	0.0	0.0	0.7	0.0	18.7	0.0	0.6	0.0	0.0	–	21.1
positive	0.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	–	1.2
negative	0.8	0.0	0.0	0.0	0.6	0.0	5.5	0.0	0.0	0.0	0.0	–	6.9
neutral	0.2	0.0	0.0	0.0	0.1	0.0	12.1	0.0	0.6	0.0	0.0	–	13.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0

**Appendix D: Portrayals of health professionals and of the body
in mathematics curriculum materials**

Table D1: Portrayals of health professionals and of the body in Year 3 mathematics curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Other materials were addition and subtraction worksheets for the multibase arithmetic blocks number book (units 2–16). These were not counted because of wide individual variations in the number of worksheets completed. None contained reference to health professionals.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Child's book	27	33	25	35	31	32	36	36	37	31	36	37	–*	49	33	59	537
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	–	0.0	0.0	0.0	0.0
Activity sheets book	25	22	23	30	36	25	22	18	22	24	28	42	113	24	26	17	497
refs to health professionals	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* There was no child's book in unit 13, but there were a large number of activity sheets to complete.

Table D2: Portrayals of health professionals and of the body in Year 4 mathematics curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Instruction paper	58	49	73	75	32	61	61	41	31	48	50	45	51	41	48	37	801
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Assignments book	25	27	27	29	39	27	33	33	49	27	31	29	25	39	28	29	497
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table D3: Portrayals of health professionals and of the body in Year 5 mathematics curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Student guide	55	48	69	73	73	59	14	51	71	59	69	68	45	81	39	24	898
refs to health professionals	0.0	0.0	0.0	0.0	28.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.2
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	28.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.2
refs to human body	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Assignments book	11	27	23	20	16	32	19	29	26	32	22	23	29	26	20	24	379
refs to health professionals	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
neutral	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table D4: Portrayals of health professionals and of the body in Year 6 mathematics curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Instruction paper	33	35	39	47	33	33	33	41	41	31	75	47	63	41	42	42	676
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.1	1.5
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.1	1.5
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Assignment book	24	25	25	26	31	26	25	27	27	31	24	33	28	39	31	31	453
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table D5: Portrayals of health professionals and of the body in Year 7 mathematics curriculum materials. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). All numbers except those in the first row refer to numbers of pages.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Instruction paper	35	35	55	39	63	49	53	51	53	69	56	59	69	89	72	93	940.0
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Assignment book	24	35	33	35	35	34	33	30	35	36	36	33	27	*	*	*	426
refs to health professionals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0
positive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0
negative	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0
neutral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0
refs to human body	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	0.0

* Mathematics instruction paper and assignment book are combined in the one book for units 14, 15 and 16. Total page numbers for these are given under the heading 'Instruction paper'.

**Appendix E: Portrayals of health professionals and of the body
in audio and video resources**

Table E1: Portrayals of health professionals and of the body in Year 3 audio and video resources. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). Numbers except those in the first row refer to numbers of minutes (fractions of minutes have been rounded to the nearest minute).

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Audio	–	23	62	73	47	97	–	95	48	125	71	44	19	116	84	58	962
refs to health professionals	–	0	0	0	0	0	–	0	0	0	0	0	0	0	0	0	0
positive	–	0	0	0	0	0	–	0	0	0	0	0	0	0	0	0	0
negative	–	0	0	0	0	0	–	0	0	0	0	0	0	0	0	0	0
neutral	–	0	0	0	0	0	–	0	0	0	0	0	0	0	0	0	0
refs to human body	–	0	0	8	0	0	–	39	0	0	0	0	0	0	0	0	47
Videodisc	–	–	–	–	–	–	13	–	–	–	–	–	20	–	–	–	33
refs to health professionals	–	–	–	–	–	–	0	–	–	–	–	–	0	–	–	–	0
positive	–	–	–	–	–	–	0	–	–	–	–	–	0	–	–	–	0
negative	–	–	–	–	–	–	0	–	–	–	–	–	0	–	–	–	0
neutral	–	–	–	–	–	–	0	–	–	–	–	–	0	–	–	–	0
refs to human body	–	–	–	–	–	–	0	–	–	–	–	–	0	–	–	–	0

Table E2: Portrayals of health professionals and of the body in Year 4 audio and video resources. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). Numbers except those in the first row refer to numbers of minutes (fractions of minutes have been rounded to the nearest minute).

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Audio	42	46	25	57	64	22	78	131	42	27	84	74	37	70	163	37	999
refs to health professionals	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
positive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
negative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
neutral	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
refs to human body	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Video	–	–	–	–	–	–	–	–	–	–	–	–	–	17	–	29	46
refs to health professionals	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–	0	0
positive	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–	0	0
negative	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–	0	0
neutral	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–	0	0
refs to human body	–	–	–	–	–	–	–	–	–	–	–	–	–	0	–	0	0

Table E3: Portrayals of health professionals and of the body in Year 5 audio and video resources. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). Numbers except those in the first row refer to numbers of minutes (fractions of minutes have been rounded to the nearest minute).

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Audio	143	216	78	21	99	139	56	201	126*	85	70	*211	*55				1500
refs to health professionals	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
positive	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
negative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
neutral	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4
refs to human body	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Video	-	-	45	45	-	40	68	43	-	-	36	79	-	-	46	-	402
refs to health professionals	-	-	0	9	-	0	1	0	-	-	5	0	-	-	0	-	15
positive	-	-	0	9	-	0	0	0	-	-	0	0	-	-	0	-	9
negative	-	-	0	0	-	0	1	0	-	-	0	0	-	-	0	-	1
neutral	-	-	0	0	-	0	0	0	-	-	5	0	-	-	0	-	5
refs to human body	-	-	0	0	-	0	0	0	-	-	0	0	-	-	0	-	0

* Shared resource pack for units 9 and 10; units 13 and 14; and units 15 and 16.

Table E4: Portrayals of health professionals and of the body in Year 6 audio and video resources. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). Numbers except those in the first row refer to numbers of minutes (fractions of minutes have been rounded to the nearest minute).

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Totals
Audio	55	10	51	130	-	42	111	205	96	46	70	64	90	122	168	16	1276
refs to health professionals	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
positive	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
negative	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
neutral	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
refs to human body	0	0	0	0	-	0	0	0	0	0	0	0	0	0	0	0	0
Video	-	-	-	-	-	-	-	-	-	-	83	13	-	-	-	30	126
refs to health professionals	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0
positive	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0
negative	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0
neutral	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0
refs to human body	-	-	-	-	-	-	-	-	-	-	0	0	-	-	-	0	0

Table E5: Representations of health professionals and of the body in Year 7 audio and video resources. References to health professionals included references to workers, where they work (e.g. hospitals), what they treat (e.g. diseases) and what they do (e.g. first aid). Numbers except those in the first row refer to numbers of minutes (fractions of minutes have been rounded to the nearest minute).

Unit	1	2	3	4	5	6	7	8	9	10	11	12	Totals
Audio	85	47	84	15	137	36	66	84	60	76	61	–	751
refs to health professionals	0	0	0	0	0	0	0	0	0	0	0	–	0
positive	0	0	0	0	0	0	0	0	0	0	0	–	0
negative	0	0	0	0	0	0	0	0	0	0	0	–	0
neutral	0	0	0	0	0	0	0	0	0	0	0	–	0
refs to human body	0	0	0	0	0	0	0	0	0	0	0	–	0
Video	–	21	–	98	–	57	–	–	26	–	–	–	202
refs to health professionals	–	0	–	0	–	0	–	–	0	1	–	–	1
positive	–	0	–	0	–	0	–	–	0	0	–	–	0
negative	–	0	–	0	–	0	–	–	0	0	–	–	0
neutral	–	0	–	0	–	0	–	–	0	1	–	–	1
refs to human body	–	0	–	0	–	0	–	–	0	0	–	–	0