Connecting for Innovation: Four Universities Collaboratively Preparing Pre-service Teachers to Teach in Rural and Remote Western Australia

Sue Trinidad
Curtin University

Elaine Sharplin
The University of Western Australia

Sue Ledger
Murdoch University

Tania Broadley
Curtin University

In 2010 a group of teacher educators from four universities, experienced in rural and remote education, formed the Tertiary Educators Rural, Regional and Remote Network (TERRR Network). The collaborative goal was to improve the quality of graduates taking appointments beyond the metropolitan areas of Western Australia. The TERRR Network developed a research project to improve the capacity of universities to prepare teachers for employment in rural and remote locations. A range of outcomes emerged from the project, including: 1) the development of seven rural and remote-oriented curricula modules linked to the Australian Professional Standards for Teachers; 2) a cross-institutional field experience, and; 3) the development of a community of practice involving the Department of Education, universities and schools to address the logistical implications of placing pre-service students in rural and remote locations. This paper reports on the five phases of the project design, with a focus on learning in the field and concludes with reflections on the collaborative process used by the four universities in order to ensure that research evidence informs future policy and program development.

Background

Despite the findings of an Australian Human Rights and Equal Opportunity Commission report (2000) and teacher education reports (Ramsey, 2000; Western Australia Ministerial Taskforce, Education Workforce Initiatives, 2007; Vinson, 2002), rural education has remained an undervalued, under researched and underfunded field.

Typically, academics have worked in isolation on small-scale research, addressing relatively localized concerns. The First International Symposium for Innovation in Rural Education (ISFIRE) in 2009 provided a global platform for four academics from the four Western Australian public universities to meet, and expand their community of practice (Lave & Wenger, 1991) in pursuit of improvements in the field of rural teacher education. In 2010 these academics formed the Tertiary Educators Rural, Regional and Remote Network (TERRR) Network as they held a collective concern about the adequacy of pre-service teachers' preparation for teaching in rural and remote areas, but had previously felt isolated and disempowered in their capacity to make a significant impact for improvement. Typical of the field of higher education, academics, especially in marginalized research fields such as rural education, operate in academic silos (Macfarlane, 2006).

The collegial interaction of the TERRR network created energy and synergies that supported academics' individual work and provided collective opportunities for research and development in the field of rural education. The network secured funding for a project to strengthen

research fields such as rural education, operate in academic silos (Macfarlane, 2006).

The collegial interaction of the TERRR network created energy and synergies that supported academics' individual work and provided collective opportunities for research and development in the field of rural education. The network secured funding for a project to strengthen the capacity of universities to prepare pre-service teachers for employment in rural schools. This paper provides a summary of the outcomes achieved by the project, including reflection on the collaborative process. Despite challenges, this collaboration among universities and academics has supported the improvement of outcomes for pre-service teachers in rural teacher education and sustained academics in the field of rural education.

The challenges of attracting teachers and other professionals to rural and remote areas within Australia and internationally are well documented (Barley & Beesley, 2007; Boylan & McSwan, 1998; Davis, 2002; Miles, Marshall, Rolfe & Noonan, 2004; Ministerial Council on Education Employment Training and Youth Affairs, 2003; Western Australia Ministerial Taskforce, Education Workforce Initiatives, 2007). In Western Australia, with the largest rural and remote area in Australia, these challenges are particularly evident. Over 31% of students are located in non-metropolitan schools, with 23% in provincial areas and 8.2% in areas classified as remote and very remote (Department of Education, Western Australia, 2012a, p. 124). Western Australia has more than 300 country schools; of which approximately 120 are identified as difficult to staff, and more than 40 schools are identified as remote (Department of Education, Western Australia, 2012b). Staffing these schools with quality teachers and achieving equitable learning outcomes for students pose major challenges to educational authorities. National data identify stark gaps between the performance of rural students and their metropolitan counterparts (Green & Reid, 2004; Lyons, et al., 2006). The educational outcomes of students in remote contexts are below those of their metropolitan counterparts in all areas reported in the National Assessment Program – Literacy and Numeracy data (Australian Curriculum, Assessment and Reporting Authority, 2012). The results are particularly poor for Aboriginal students located in remote contexts. These findings reinforce the need for the attraction and retention of high quality teachers to effectively support student learning in non-metropolitan and, specifically, in remote locations.

One of the challenges for a significant number of pre-service teachers is the lack of knowledge of life beyond the outer fringes of the metropolitan area. Tempting such students to consider teaching in rural and remote locations is difficult (Boylan & Wallace, 2007; Herrington & Herrington, 2001; Reid et. al., 2008; Sharplin, 2010). Boylan and Wallace (2007) capture the issues:

> In Australia, most pre-service teacher education courses are based in the capital cities. The majority of students enrolled in teacher education courses are drawn from metropolitan schools. For these courses and their students, rural schools and their communities are "unknown," "to be feared," "to be avoided" and have little connection with these students' life experiences (p. 22).

The importance of pre-service teachers being able to experience the unknown and be provided with the opportunities to enable them to make informed decisions and judgements about teaching and living in rural, regional and remote locations is strongly made in the Australian research literature (Halsey, 2005; Kline, White & Lock, 2013; Lock, 2008; Sharplin, 2002; 2010; Storey, 1992).

Despite the findings of the Human Rights and Equal Opportunity Commission (HREOC, 2000) and subsequent research (Lyons, Cooksey, Panizzon, Parnell & Pegg, 2006; Frid, Smith, Sparrow & Trindad, 2009), teacher preparation is still failing to equip students with the skills and knowledge to teach in rural and remote locations. Boylan (2004, p. 9) described the provision of rural pre-service education as "piecemeal" and, more importantly, graduates recognize that they are not well prepared for these contexts (Frid, Smtih, Sparrow & Trinidad, 2009). Through effective preparation and exposure of pre-service teachers to rural and remote contexts, fear of the unknown and the unfamiliar can be reduced (Sharplin, 2002, 2010), providing greater enticement to experience working in rural and remote areas (Davis, 2002; Gibson, 1994; Halsey, 2005; HREOC, 2000). Given their lack of experience with rural and remote locations, pre-service teachers need both knowledge about rural and remote contexts as well as practical experience to create a nexus between theory and practice (Ramsey, 2000).

One project that has made significant headway with the preparation of resources to support teacher educators in their development of teachers for rural contexts is the Renewing Rural and Regional Teacher Education curriculum project (White, Kline, Hastings & Lock, 2011). The TERRR Network sought to extend and complement the Renewing Rural and Regional Teacher Education curriculum project by addressing the remote context in more detail. Issues related to remote contexts are of high relevance to many Australian jurisdictions and international contexts, especially in developing countries. The Rural Social Space model (Reid, Green, White, Cooper, Lock & Hastings, 2009) provided a theoretical frame for the project. The model posits that education occurs within a specific geographic, demographic

and economic context, framed by the intersection of policy in these spaces. By building directly on the intellectual output of previous projects, the TERRR Network consolidated the intellectual assets of a geographically and temporally disparate intellectual community of practice, while at the same time explored connectivity and community, which are fundamental philosophical beliefs, associated with the field of rural education.

This paper outlines the five phases of the TERRR Network project design, describes each phase of the project, reports on the data collected in Phase Four with a focus on learning in the field and concludes with reflections on the collaborative process in order to identify insights for future collaborative endeavours.

Project Design and Action Research Methods

The project used a research and development framework, based on design research principles (Van den Akker, Gravemeijer, McKenney, & Nieveen, 2006) and an iterative action research cycle (Creswell, 2012; Koshy, 2005). Design research focuses on empirically grounded, applied research intended to produce "new theories, artefacts, and practices that account for and potentially impact learning and teaching in naturalistic settings" (Barab & Squire, 2004, p. 2). The aim of the project was to develop processes and resources to support teacher educators in their preparation of pre-service teachers using these methods. The project progressed through five interactive cycles (Stringer, 2007) of planning, implementation and reflection. The action research methodology was consistent with the collaborative focus of the project. According to Gilmore, Krantz and Ramirez (1986, p. 161), action research involves a "dual commitment…to study a system and concurrently to collaborate with members of the system" in order to create positive change for the participating community and its stakeholders. The process involved the co-construction of knowledge and foregrounded the importance of dynamic interaction to produce synergies within the project team. The review process was facilitated throughout the project by the involvement of an external project evaluator who collected observational data about the project processes and outcomes and provided feedback to the project team after each phase. Partner organizations and reference group members were a critical part of the design, ensuring broad stakeholder involvement and representation in the project.

The five phases of the project included in Phase One the completion of an environmental scan and the mapping of existing curricula; in Phase Two the collaborative development of curricula resources; in Phase Three the implementation of student learning modules; in Phase Four implementation of a collaborative learning in the field; and

in Phase Five the sharing and dissemination of the project outcomes. In the following narrativized account (McNiff & Whitehead, 2009), we describe each of the five phases, including details about the participants involved, the data collected, the methods of analysis and the outcomes achieved, consistent with approaches of action research reporting.

Ethics approval was provided by the lead university (HR156/2010) and endorsed by the three other participating universities. Students participating in the Phase 4 pre-service field trip project were also covered by ethics approval (RA/4/1/5504).

Phase One: Mapping of Curriculum

Phase One involved a local, national and international environmental scan of teacher education curricula focussed on the preparation of teachers for rural and remote locations. Data were collected using the methodology of a literature review which involved an investigation of existing structures and processes of university courses. Potential organizations offering rural education components within teacher education courses were followed up through a process of snowball sampling (Hesse-Biber & Leavy, 2011).

Despite Gibson and King's (1998) statement that 91% of Australian universities claimed some "rural focus" in pre-service teacher education courses, our environmental scan revealed that only 11 out of 39 Australian universities provided a dedicated course focussed on rural education. The courses offered in many instances were predominantly electives rather than core courses. We interrogated Gibson and King's claim by considering what might constitute a "rural focus." Interviews were conducted with key personnel of 11 institutions identified as offering courses in rural education and, where possible, documents outlining the nature of the courses offered were analysed for evidence of preparing pre-service teachers for rural and remote schools.

Identified courses containing a rural component were classified in five ways: 1) dedicated rural education courses; 2) embedded rural education content; 3) Aboriginal education courses; 4) rural practicum courses, and; 5) courses offered within regional areas that provided "grow your own" teachers programs, that is, courses delivered in regional areas, but without a focus on broad concepts of rurality and preparation for rural and remote contexts beyond the local.

The conclusions drawn from this environmental scan were that locally, nationally and internationally the preparation of pre-service teachers for rural education continues to be piecemeal, reflecting the ongoing marginalization of this field and justifying the concern of the project team regarding the preparedness of pre-service

teachers to teach in rural and remote contexts. The findings revealed that existing initiatives were led by passionate individuals often operating in isolation and continually under pressure within universities with constricting budgets. On the basis of these conclusions, the project team decided to focus on the development of resources for embedding content within existing courses, as the approach most likely to produce uptake from teacher educators and institutions.

The environmental scan also included a review of cross-institutional approaches used in Western Australia for the development of pre-service health professionals. The project team was interested in the potential for synergies between education and health because of the similar issues of attraction and retention in the health field (Institute for the Service Professions, Edith Cowan University, 2006). Exploration of the health field revealed that health professional education is supported by an extensive, well-structured and well-funded national approach that includes mechanisms to support students, graduates and continuing professional development. For example, in 2009-2010, $134.4 million was allocated to address health workforce shortages. Twenty-seven programs and initiatives were funded by national and state governments. Funded programs included the Australia Rural Health Education Network, which provides national coordination for 11 University Departments of Rural Health and the National Rural Health Students' Network. By contrast, government spending on education for the same period was $75.7 million (Australian Bureau of Statistics, 2012a).

Although the sectors of health and education are not equitably funded, the goals of the University Departments of Rural Health for the education of health professionals are consistent with the goals of rural teacher education. For example, the Combined Universities Centre for Rural Health provides pre-service rural experiences, support structures on graduation, early career networking, opportunities for ongoing professional development and a focus on research. The goals of Combined Universities Centre for Rural Health include: increasing the amount of student time in rural and remote locations in medicine, nursing and allied health teaching programs; raising the profile of rural teaching, research and practice in academic departments; increasing recruitment and retention rates by making rural and remote practice more professionally rewarding; an increased number of skilled Aboriginal people working in the health sector, and; becoming a centre known for innovative and practical rural and remote population health research and policy analysis (CUCRH, 2012). The project team found all of these goals representative of, and transferable to the education context.

While these investigations provided a vision for the preparation of rural educators of the future, and reaffirmed our belief in the potential for synchronicities between health and education, the funding differentials, reflecting different national political priorities, meant that pragmatically the project may need to consider inter-sectoral collaboration such as networking with health education staff in specific rural locations. Findings from this phase provided an evidence-based approach and informed the process used for the following Phases. This reinforced the need for a "bottom up" approach to achieve change and innovation (Stehlik & Carden, 2006).

Phase Two: Collaborative Development of Curricula

The second cycle of the action research methodology involved the collaborative development of curricula to prepare pre-service teachers to work in remote areas. For this phase of the project, minutes of meetings, action plans and memos of specific actions provided an audit trail for the action research process. A gap analysis was conducted of the resources produced in the Renewing Rural and Regional Teacher Education (RRRTEC) curriculum project (White, Kline, Hastings & Lock, 2011) which highlighted "remote contexts" and "Aboriginal contexts" as areas requiring further resourcing. The reference group was consulted extensively and intensive planning meetings occurred during this phase. The reference group consisted of representatives from all education sectors, business, industry and government. To optimise adoption of curriculum materials within existing units and programs, initial planning focused on practical approaches to curriculum development. Generic objects and modules of curriculum were developed to allow greater flexibility with implementation.

The framework for the curriculum material development was based on the newly developed Australian Professional Standards for Teachers. The Australian Professional Standards address the range of career stages of teachers in the workforce. It is articulated as a continuum of four levels that guides professional learning, practice and engagement: Graduate (met university requirements as beginning teachers), Proficient (fully registered teachers), Highly Accomplished (highly effective, skilled teacher) and Lead Teacher (exemplary teacher) (Australian Institute for Teaching and School Leadership, 2012). The project focussed on the Graduate level standards only, considering the essential knowledge and skills set that a graduate teacher would require teaching effectively in a remote context. The Australian Professional Standards for Teachers framework provided a common discourse, a national focus and contemporary relevance. Research suggests that the use of clear and concise statements or profiles of what teachers are expected to know and be able to do benefits all teachers (OECD, 2005). Specific standards were identified that address key concepts essential for remote contexts including resources available to support learning

about these concepts. Three of these standards became the focus for the development of the teacher guides: Standard 1 - Know students and how they learn; Standard 6 - Engage in professional learning; and Standard 7 - Engage professionally with colleagues, parents/carers and the community.

The project team conducted collaborative brainstorming and planning sessions to exemplify the Australian Professional Standards for Teachers for the Graduate level targeting the needs of teachers appointed to remote contexts. Through this process resources were identified and content developed along with active learning sequences that could be embedded within existing teacher education courses. During this process, consultation continued with stakeholders and reference group members. Materials were continuously drafted and reviewed by project team and the reference group.

The collaborative process resulted in the development of a teaching framework and seven curriculum guides focussing on the following areas: understanding the impact of remoteness on student learning; learning in the remote context; teaching students from diverse backgrounds in the remote context; Aboriginal and Torres Strait Islander students; Identifying and planning professional learning needs; engagement in professional learning with colleagues, parents and the community in the remote context material, and; developing professional learning networks (Tertiary Educators Rural, Regional and Remote Network, 2012). Each curriculum guide contains a link to the Australian Professional Standards for Teachers, outcomes for learning for pre-service teachers, topics with associated content notes, suggested activities and a list of resources. All of the resources produced are available from the website of the Society for the Provision of Education in Rural Australia (SPERA) http://www.spera.asn.au, one of the partner organizations involved in the TERRR Network.

The teacher resource package was developed for use by teacher educators involved in pre-service teacher education. Topics, activities and resources presented in the package were designed to be embedded within existing courses, sequenced to provide an extended module of work, or to guide the development of a dedicated course. A strategic approach for further promotion and dissemination of this resource package was developed targeting universities, networks, professional and other organizations and key policy players involved in the field of rural and remote education.

Phase Three: Implementation of Student Learning

Phase Three involved the trial implementation of the "Introductory Module: Social Networking and Teaching in Regional, Rural and Remote" within an existing teacher education course at one of the project institutions. The curricula module was delivered online to a cohort of 200 first year pre-service teachers, enrolled in a Bachelor of Education course, studying both in metropolitan and remote areas. A set of guided tasks provided an overview of how technology might be used to support teaching and learning in remote contexts. At the conclusion of the course, a survey was conducted to gather quantitative and qualitative data about participants' expectations of undertaking a rural or remote pre-service teacher practicum placement. From 164 responses, the data were analysed and used to inform the refinement of the curricula guides and to shape the fourth phase of the project. The results of this phase have been reported in Trinidad, et al. (2012). In summary, students expressed strongly positive views about the value of participating in a rural or remote field experience. Participants strongly agreed that they would benefit by developing appropriate teaching strategies (70%), they would improve their knowledge of the characteristics of rural and remote students (55%) they would be better prepared with student management strategies (46%) and their capacity to build positive staff student relationships would be enhanced (57%).

Phase Four: Implementation of Learning in the Field

This part of the project involved the mapping of pre-service teacher practicum placements at the four universities involved in this research. This important mapping was undertaken in order to identify common times when students were in the field, across different programs and at different year levels as the pragmatics of course timetabling and structure pose significant challenges for cross-institutional collaboration. Attending to functional details is essential for success. In order to build on the findings of Phase One of the project, connection with the Rural Clinical Health Schools assisted with practical resourcing issues associated with shared transport and accommodation for students placed in rural and remote practicums.

The intention of this phase was to implement a cross-institutional field trip to a remote location. The TERRR Network team actively lobbied state and local government and commercial and philanthropic organizations prior to the commencement of the project to source funding for a cross-institutional field trip experience. This experience used the successful field trip structure implemented for 15 years at one of the institutions (Sharplin, 2010). These protracted efforts delayed the implementation of the field experience within the initial TERRR Network project. Significant financial support was not forthcoming, however, small-scale local government and local business support was secured.

Phase Four involved implementation of learning in the field and was undertaken in collaboration with the Western

Australian Combined Universities Training Schools project (Broadley, Sharplin & Ledger, 2013). A voluntary opportunity was offered to 44 pre-service teachers in a specialized course, of which only 10 participated in the field trip to a remote location. While many pre-service teachers showed interest in attending the field trip, the realities of employment and family commitments prevented them attending.

Structure of the Pre-Service Field Trip

The itinerary was collaboratively developed among university educators, local government, commercial and industrial representatives, and local school educators. It was designed to provide insight into professional and social aspects of living and working within a small community. The destination for the field trip was 600 kilometres from the metropolitan area of Perth, Western Australia. Pre-service teachers met local teachers, graduates and principals at a welcoming event. Socially, they attended a local race meeting, toured a gold mine, local historic buildings and recreation amenities, and participated in recreational activities. Of particular significance was an event hosted by the local council to integrate education and medical interns, fostering multi-disciplinary connections between health and education. These events offered the pre-service teachers a snapshot of the opportunities and facilities that are part of the lived experience of teachers in rural and remote areas. The inclusion of a range of social experiences supports Wenger and Dinsmore's (2005) call to expose pre-service teachers to the everyday demands of rural and remote life.

The pre-service teachers were exposed to a wide range of experiences in schools throughout the district. The schools varied in size, representing a range of socio-economic and ethnic and cultural contexts. Each school provided an induction before pre-service teachers were placed in classrooms to observe, assist and team-teach. After school, the pre-service teachers were provided with additional professional development activities, including video presentations from educators situated in a very remote location, and information about Aboriginal education and the Western Australian Remote Teaching Service (Department of Education, Western Australia, 2011). For many of the pre-service teachers, these sessions proved pivotal to their understanding of the diverse remote contexts in Western Australia.

The five day field trip included a reflective practice component. At the end of each day, pre-service teachers were encouraged to share, discuss and reflect on their experiences. These reflections were in oral and written form. The community of practice was extended into an online network known as the "professional portal for interns." The portal facilitated on-going interaction between the interns and provided a platform for ongoing professional reflection aligned to the Australian Professional Standards for Teachers (Graduate level).

The development of a cross-institutional network of pre-service teachers drawn from the four universities provided a further way of integrating approaches adopted from the health sector where national networks of health students have been established. The rural pre-service teacher's field trip was developed to coincide with an annual medical internship program.

Demographics of Field Trip Participants

A pre-field trip experience survey and a post-field trip experience survey were conducted to gather data about the demographics of the participants and the outcomes of the field trip initiative. Although small in number (n=10), the demographic of the pre-service teachers involved in the field trip was diverse, including representatives from four universities. Participants' ages ranged from 20 to 48 (with five aged 20-29; three aged 30-39 and two over 40). Three of the 10 pre-service teachers were male, a ratio that reflects the Australian Bureau of Statistics data (2012b) namely, male teaching staff at 30% and female teaching staff at 70%. Four of the cohort had children and two of the group were married. Seven had visited rural areas, but only three had experienced living or working away from coastal centres.

The expectations of the group, prior to the field trip, were also diverse. All wanted to gain better knowledge of the reality of living and working in rural areas. Three of the 10 were actively seeking employment in rural areas for the next year. The majority wanted to meet other interns in a practicum context that was non-assessable, and therefore, less competitive. The field trip participants represented only 2% of the total cohort. This is a smaller percentage than those indicating interest in a field trip experience from the 2011 pre-service teacher data (60%) gathered in Phase Three of the project (Trinidad, et al., 2012). It is likely that the actual pragmatics of time away from personal responsibilities limited the involvement of students and that the figure gained from the 2011 data represented an idealized rate of participation.

Outcomes of the Field Experience

In the pre-trip questionnaire, nearly all participants commented on their concern about social, cultural and professional isolation of teaching in rural and remote areas, consistent with the findings of Sharplin (2002; 2010) and Trinidad, et al. (2012). The following view reflected the general feeling of the cohort that "the perceived loss of friends, family, contacts and activities on top of the already overwhelming demands of teaching" would be very

challenging. They made negative predictions, with rural contexts perceived as being more difficult than those of their metropolitan counterparts.

The field trip allayed many of their pre-trip concerns. The participants noticed similarities and differences in the teaching community in a country context compared to their metropolitan counterparts. The participants' responses highlighted differences between the pre-service teachers' perceived views about rural and remote teaching contexts and the reality of the "lived experience" observed on the field trip. For many of the cohort, these perceptions changed after the field trip. The post field experience survey responses revealed four dominant themes associated with pre-service teachers' perspectives regarding "going bush." The following themes were developed and are discussed:

- A raised awareness of the social, cultural and professional demands and benefits of living and working in rural areas;
- The diversity of rural and remote school contexts and the diversity of students within those contexts;
- The value of exposure to teachers and principals in social settings rather than solely in assessment based practicum situations,and;
- The importance of having an opportunity to interact with pre-service teachers from other contexts (the value of a collaborative cross-university experience).

A raised awareness of the social, cultural and professional demands and benefits of living and working in rural areas. Participants commented on the intensity and the breadth of their learning experience; with one participant summarizing it as "jaw-dropping." Others commented:

It was good to see how interns dealt with things on a daily basis inside and outside of the classroom.

The leaders of the community and the schools respect and honour teachers. There was a lot of support and great sense of community, I was surprised .

The focus was on people and getting along with others. They seem to know and be more interested in their students rather than the activity.

In essence the participants valued the acquisition of first-hand knowledge, based on their own lived experiences and observation of graduate teachers in regional centres. The field experience provided them with a real and personal experience that enabled them to reflect on their own reactions and responses. For one participant, the impact of the experiences was significant, resulting in an expressed commitment to seeking a rural placement in the next year. She commented: "I have got the bug [for rural teaching] and I love it."

The diversity of rural and remote school contexts and the diversity of students within those contexts. Participants gained an understanding of the variety of school contexts, the different cultures within schools and the diversity of student abilities and needs. Two students provided these comments:

The school visits were amazing; each was so different in needs and structure.

I learnt how important it was to cater for diversity because not only are schools different but every class is different, and so are the children.

A few participants highlighted concern about their lack of confidence in being able to address the needs of Aboriginal students, particularly in regard to teaching English. These concerns were noted in the development of the curricula materials and teaching guides. Teaching Guide Three is entitled "Teaching students from diverse backgrounds in the remote context" specifically to deal with these concerns.

The value of exposure to teachers and principals in social settings rather than solely in assessment based practicum situations. Participants valued the opportunity to be involved in a school-based experience that was not an assessable component of the course. This enabled them to feel confident and "take risks", encouraging them to get involved without fear of failure. It also contributed to open and honest reflection and discussion. Participants did not worry that an expressed opinion would reflect negatively on them in terms of course assessment. These views are evidenced by the following responses:

I learnt that you have to establish yourself in both professional and social aspects of your life and this can be overwhelming without the support of staff.

Invaluable experiences and knowledge just through talking and listening to others both in the schools and out.

The importance of having an opportunity to interact with pre-service teachers from other contexts (the value of a collaborative cross-university experience). Participants valued the opportunity to develop an extended community of practice beyond their respective pre-service teacher institutions. The experience of rapidly forming

strong relationships in fact mimicked the experience of induction into a new school community at the beginning of an appointment. This gave participants confidence in their ability to form new relationships amongst other graduate teachers in a rural setting. They felt encouraged that they would be able to deal effectively with the process of socialisation into a new profession, new school and new community.

After the field experience, fewer negative disparities were perceived to exist in rural contexts as expressed by this participant stating "There wasn't a big difference; the staff were just as committed to teaching students and just as qualified and capable." However, the data collected from both 2011 pre-service teachers and the 2012 field experience interns confirmed the view that pre-service teachers in and across all four public universities in Western Australia are still inadequately prepared for teaching in rural or remote centres. These results are not surprising given that the curricular materials developed within this project had not been fully disseminated or utilized at this point in time. While many of the initial teacher education programs address cultural diversity (including a focus on Aboriginal education) within particular units, they do not specifically address these in regard to remote contexts. Caldwell and Sutton (2010) and the Department of Education and Training, Queensland (2011) have reiterated specific concerns about the preparedness of pre-service teachers to teach in remote Aboriginal communities.

While the limitation of the small-scale of this phase is acknowledged, the investigation confirmed that extensive professional learning can occur in a short, intense period of time (Beutel, Adie & Hudson, 2011). The collaborative rural field experience will be provided once again in 2014, with the anticipation of a larger cohort.

Experiential learning plays a significant role in all phases of learning, including higher education. The participants in the field trip highlighted the benefits gained by being exposed to the lived experiences of those in regional contexts. Recent research identified field trips as triggers for attitudinal changes by pre-service teachers for teaching and living in rural areas that dispelled preconceived beliefs about teaching in these areas (Hudson & Hudson, 2008). Similar findings can be found in international settings that identify the value of field trips, with embedded reflective practices, as effective in enhancing the personal growth and cross-cultural competency of pre-service teachers (Pence & Macgillivray, 2008; Smith & Lev-Ari, 2005; Willard-Holt, 2001).

Phase Five: Reflection and Sharing

The final dissemination of the project culminated in a launch of the training package, including the framework and the teacher resource package. Over the two-year period a wide variety of dissemination has occurred targeting all those involved in pre-service teacher education and those organizations and networks associated with rural and remote education. Promotional information including poster information and regular newsletter updates were delivered at these events throughout the project to keep stakeholders informed of progress. The reference group was a source of continual support and guidance.

While the reflection and sharing were embedded throughout all phases of the project, consistent with an action learning approach, the final phase of the project provided an opportunity for reflection on the whole project, including the intended and unintended outcomes and the processes enacted. Reflections on the outcomes of the whole project are discussed in the section below.

Discussion

The TERRR Network project has delivered a practical resource to enhance the capacity of teacher educators to prepare pre-service teachers for appointment to remote communities. By aligning the materials to the Graduate standards of the Australian Professional Standards for Teachers a resource with contemporary, national relevance has been created. While specific to the Australian context, the resource identifies essential knowledge and skills that appear relevant to other international contexts on the basis of the available empirical literature. Concepts related to second language use, multi-age and grade teaching and learning, and establishing collegial and community networks appear to resonate in the international context (Harmon & Schafft, 2009).

However, the outcomes achieved exceed the deliverables originally specified for the project. Significant additional outcomes have been the creation of an effective community of practice, the dismantling of institutional barriers and the linking of research projects for continuity and growth. These outcomes are in fact vital to the sustainability of the project innovations and innovation more generally. According to Kirkland and Sutch (2009, p. 4) "a supportive informal social environment is crucial to the success of innovations." The creation of the community of practice provided a supportive social environment that sustained the project innovation and has led to sustained research interactions among project participants to continue the innovative process.

In the neo-liberal context of the grant economy (Stern & Hall, 2010), where organizations are continually competing for funding for research, teaching and learning, there is a risk that the outcomes from projects will not be sustained due to lack of continuing funding and a focus on short term projects with small scale deliverables. There is also the risk that cut-throat competition will result in reduced

opportunities for collaboration and synergies. This project has demonstrated that continuity of project goals can be achieved through collaborative approaches and endeavours.

Creating and sustaining a community of practice across institutional boundaries in times of competition for funding is a challenging enterprise. Reflections on this project highlight two key components for success: the strength of commitment of participants to the collaborative goal, and the ability to establish and maintain effective interpersonal relationships.

Members of the project team all have a passionate commitment to rural and remote education; all having extensive and diverse professional experience of working in and with rural and remote schools and communities. After working in relative isolation, the opportunity to collectively impact on rural education outcomes created a strong incentive to frame common goals and use the group synergy to sustain energy and commitment. However, sustaining commitment to the vision is dependent on the achievement of professional and personal rewards for group members. Given the challenges of collaboration (for example finding common times for regular meetings and the fulfilment of project deadlines), it is important that the collaboration is personally rewarding; that the social interaction is positive and supportive.

To collaborate across institutions requires attention to the pragmatics of project management, and the ability to secure the commitment of wider members of the organisations to the project goals. At times project members experienced institutional resistance and the ongoing success of the project depends on the uptake and the further dissemination of the project deliverables.

The project also highlights the crucial importance of professional associations and their conferences as sites for collegiality and networking. In a research field that is fragmented, it can be difficult to establish collegial networks. In the case of this project, an international conference provided a meeting ground for academics who were unaware of the work being undertaken by individual colleagues within one state.

One of the most powerful outcomes from this project has been the linking of a series of research projects to create cumulative benefits across the nation. At the time of the conception of this project, the work of another project consortium was unknown to the project team. When information became available about the Renewing Rural and Regional Teacher Education curriculum project (White, Kline, Hastings & Lock, 2011) project, the TERRR Network capitalised on the previous work, by extending the outcomes and addressing a specific gap, namely the remote education context. There is now a powerful developmental trail from the original "Renewing Rural Teacher Education: Sustaining Schooling for Sustainable Futures" project

(Green et. al; 2008) through to the "Renewing Rural and Regional Teacher Education curriculum" project (White, Kline, Hastings & Lock, 2011), the TERRR Network project (Tertiary Educators Rural, Regional and Remote Network, 2012) and the continuing work of the Western Australian Combined Universities Training Schools project (Broadley, Sharplin & Ledger, 2013). This represents an efficient approach to knowledge development.

Since the project commenced, further collaborative action has occurred in the field of rural education in Australia. The National Rural Education Summit (Sydney Myer Chair of Rural Education and Communities and Society for the Provision of Rural Education in Australia (SPERA), 2011) supported the call for a united front in addressing issues related to the preparedness of pre-service teachers to teach in rural and remote contexts. One of the outcomes of the summit was a call for the development of a national rural education strategy that addresses the needs of rural and remote schooling. This requires a collaborative and multi-disciplinary approach to addressing the issues involving all stakeholders in the process, including government departments, policy makers, universities, schools, community organisations and networks associated with the preparation, attraction and retention of teachers in rural and remote centres. Unfortunately, some two years later, there continues to be a political lack of interest in responding to national calls for action.

Conclusion

This project has worked collaboratively between four Western Australian universities to address the continuing problem of the effective preparation of teachers for remote contexts. There is an urgent need to include rural and remote content and contexts into teacher education courses in a structured and scaffolded manner. In doing so, it will strengthen the nexus between theory and practice related to professional knowledge, professional practice and professional engagement in strategies and issues related to rural and remote locations. This includes developing combined placement opportunities and partnerships among schools, universities and regional networks. It also involves reflecting on placements or field trip opportunities that are not always assessed.

Pre-service teachers require multiple sources of knowledge and experiences to draw from in their quest to become competent in the profession (Smith & Lev-Ari, 2005). A multi-pronged approach to curricula development, professional practicums, field experiences and content-specific strategies for teaching in rural and remote locations is recommended. Ideally, approaches that encompass multi-modal delivery options are recommended for all involved in preparing pre-service teachers for professional and

social experiences in rural and remote locations (Wenger & Dismore, 2005). This is further supported by Reid et al.'s (2008) model in which an understanding of the rural social space, including geographic, demographic and economic aspects, is considered crucial for teachers working in such contexts.

The TERRR Network project, through the collaboration of four Western Australian universities, has sought to strengthen the capacity and credibility of initial teacher education institutions in the preparation of rural and remote educators. Using an action research model and design research principles, the research project developed a Training Package and Teacher Guides, and a cross-institutional field experience opportunity. These materials and learning experiences fill a void in the preparation of pre-service teachers for remote locations. Such projects achieve success through collaborative innovation and the commitment of a team, brought together with the common goal of achieving the attraction and retention of professionals to rural and remote locations in Western Australia. The findings and recommendations will add to research related to the preparedness of Western Australian graduates to teach in rural and remote locations. Continued political pressure must be applied to ensure that the available research evidence informs future policy and program development in the area.

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