

1-1-2006

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Recommended Citation

Herrington, Anthony J. and Herrington, Janice A.: Using the internet for professional development: the experience of rural and remote professionals 2006, 313-322.
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Using the internet for professional development: The experience of rural and remote professionals

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The retention of professionals employed in rural and remote areas of Australia is a critical factor in community growth and sustainability. Retaining professionals depends to a large extent on the availability of support and professional development that is becoming increasingly accessible through the internet. This paper describes a research study that used survey and interview methods to indicate how a range of ten professional groups employed in rural and remote Australia, are accessing the internet for professional development. The findings indicate that email, the world wide web, discussion, chat and listservs were commonly used, however, the ability of professionals to avail themselves of professional development support on the internet was not always within their own control, and depended on a number of complex factors.

Keywords: internet, professional development, rural and remote professionals

Introduction

Isolation and lack of professional support is a factor in many professionals' decisions to abandon teaching, nursing, physiotherapy, dentistry and a range of other professions (Human Rights & Equal Opportunity Commission, 2000; National Rural Health Alliance, 1998). It is easy to imagine that the internet could revolutionise the way professionals in remote and rural areas of Australia access, and participate in, professional development activities.

The affordances of the internet now readily enable the downloading of information and recent research papers, written communication between colleagues, videoconferencing and voice communication, and a range of other services and facilities that should ameliorate the professional isolation that afflicts professionals throughout rural and remote Australia. The innovative use of information communication technologies to deliver online support, professional development and resources should readily help to remove any sense of professional isolation. In so doing, it could have a positive effect on professionals' morale, reduce attrition, and decrease government costs in the provision of services. Retaining able and experienced professionals in rural areas should help provide long-term benefits to the rural economy.

In this paper, we describe a survey study conducted to explore the extent and nature of professional isolation in rural and remote regions of Australia, and the use of the internet to support professional development needs. The study drew upon survey and interview data from 10 professions, and the findings and recommendations are based on the views and experiences of over 1200 respondents.

Examination of the data allows a picture to emerge of rural and remote professionals' use of the internet for professional development—who is learning and the technology they are accessing. The paper describes the level and extent of use of the internet for professional development, and the types of internet tools used by professionals on a daily basis.

Background

Because of widespread concern that reduced outcomes in health, education, employment and technology in rural Australia have the potential to undermine national cohesion (House of Representatives Standing Committee on Primary Industries & Regional Services, 2000; Regional Australia Summit Steering Committee, 2000) strategic support for rural and regional areas has become a national priority (Anderson, 2001). Attracting and retaining professional and para-professional staff in rural areas is recognised as a significant factor in improving many of these outcomes. Compared to their metropolitan counterparts, rural communities face a number of reduced health outcomes. These include higher mortality rates, higher incidence of cardiovascular disease, preventable accidents, cancer and diabetes, higher rates of youth

suicide, higher rates of hospitalisation and reduced access to GPs, nurses, midwives, pharmacists, dentists and other allied health professionals (National Rural Health Alliance, 2001).

Similarly, educational outcomes are reduced for rural compared to metropolitan communities. Schools in rural Australia experience a higher turnover rate of staff than metropolitan schools (Tomlinson, 1994). A high turnover of inexperienced staff results in schools lacking stability and program continuity, with clear disadvantages for students (Human Rights and Equal Opportunity Commission, 2000). The commission has documented the reduced quality of educational outcomes achieved by rural students in respect of literacy, numeracy, retention rates and participation in higher education.

While there are a number of factors that influence these outcomes, a significant one appears to be the shortage of able and experienced professionals employed in rural communities (House of Representatives Standing Committee on Primary Industries and Regional Services, 2000; Human Rights and Equal Opportunity Commission, 2000; American Association of School Administrators, 1999). This problem is widespread across many different professional groups such as medical practitioners, nurses, allied health professionals, dentists, and pharmacists (National Rural Health Alliance, 2001), teachers (Collins, 1999), speech therapists (Foster & Harvey, 1998), and social workers (Lonne & Cheers, 2000).

Recruiting and retaining professionals in rural areas

In recognition of this concern, State and Federal governments have introduced a number of initiatives to recruit professionals to rural areas. For example, incentives to attract practising teachers include preferential treatment for transfers; additional annual leave; monetary allowances, repaying HECS liabilities and subsidised housing. Other approaches have aimed specifically at attracting suitable pre-service teachers by recruiting them from rural areas; providing practicum placements in rural areas and offering pre-service modules that provide information about teaching in rural and remote areas (Human Rights and Equal Opportunity Commission, 2000). In the health area, strategies have been developed to attract health specialists to rural areas including scholarships, grants, specialist rural posts, training programs and locum programs (Regional Australia Summit Steering Committee, 2000) and recruitment from rural areas (Rabinowitz, Diamond, Markham, Nina & Paynter, 2001).

While there are initiatives in place to *attract* professionals not enough research attention is being given to determining effective ways to *retain* them (Collins, 1999; Murphy & Angelski, 1996; National Rural Health Association, 1998). There are many reasons to explain the differential employment patterns of professionals in rural as compared to metropolitan communities. The reasons why rural and remote schools are difficult to staff include a number of disincentives such as travel costs, higher costs of living, and limited accommodation.

An important disincentive appears to be lack of access to professional development, in particular, decreased contact and support from fellow professionals and administrators (Human Rights and Equal Opportunity Commission, 2000; Collins, 1999; Foster & Harvey, 1998; Hoover, & Aakhus, 1998; Westling & Whitten, 1996). Similarly, doctors and dentists do not take up rural practices because of the lack of professional support and development, as well as factors such as: lower earning capacity; and lack of employment, health and educational opportunities for spouses and children (National Rural Health Alliance, 1998). Some specialist areas of health care experience critical issues of recruitment and retention.

The potential benefits of professional development and support through ICTs

More adequate professional development and support could help remove the sense of isolation faced by professionals working in rural Australia, and could have a positive effect on their decisions to remain in rural communities. The benefits of developing and implementing professional development and support resources have been recognised in a number of government reports.

The innovative use of information and communication technologies (ICTs) is argued by a number of researchers as a viable option for providing professional development and support for rural professionals in the areas of health (e.g., Striffler, & Fire, 1999; Sykes, & McIntosh, 1999). Banks and Togno (1999) suggest that Telehealth can provide opportunities for teleconsultation, telemonitoring and teleinformation.

They argue that of these, teleinformation has the greatest potential for rural health care workers, and suggest that email for communication between clients and other professionals, and the use of the World Wide Web in accessing information, are essential skills needed by rural health carers.

Overseas, the National Rural Health Association (1998) in the United States argues that although much effort has been expended in placement of physicians in rural areas, relatively little has been done to enhance their retention. The association argues that professional isolation is often a reason to leave a rural area and, as in Australia, the association suggests that innovations in information technologies such as the internet and teleinformatics can become resources for diminishing this isolation.

In a strategy that parallels that proposed for retaining health professionals, the Northern Territory Government in its submission to the House of Representatives Standing Committee on Primary Industries and Regional Services (2000) recommended the innovative use of information technologies in reducing professional isolation of teachers.

Adequate communications services will enable schools to provide appropriate levels of education and assist to remove the sense of isolation for staff. Internet access for teachers in remote areas would enable the electronic delivery of course material, professional development and on-line assistance... The provision of adequate communications as well as other infrastructure can have a positive impact on staff morale and a consequent reduction in the high staff turnover rates in remote community schools. This would have an overall effect of reducing the cost to Government of providing educational services to remote areas (p. 267).

The research study

In order to assess the extent and nature of the use of the internet to support professional development, a study was conducted:

- To identify the *level* of professional development and support that is available through the internet to professionals working in rural Australia
- To assess the *use* of professional development and support that is available through the internet to professionals working in rural Australia
- To identify the perceived *needs* and *benefits* of professional development and support that is available through the internet to professionals working in rural Australia

Methodology

The methodology comprised extensive consultation and a literature review, a review and analysis of professional development websites, a survey of over 1200 rural workers in 10 professional areas in two states of Australia, and selected interviews. Each data source and method of analysis is described below:

Website review

A review of professional development websites was conducted to assess the systemic online support offered by professional organisations to their members (such as the *Australian College of Educators'* website, the *Australian Medical Association* website, etc.). English language websites in Australia, New Zealand, UK and USA were sourced on advice from consultations with professional bodies, from the literature, from links provided within other professional websites and from general web searching using browsers such as *Google* and *AllTheWeb*. The websites were analysed for the types of knowledge building services they provide, support services, information sharing opportunities, and the communication tools and resources offered. The data was assembled in tables to allow easy comparison of the forms of professional support provided in each site.

The survey

Professionals working in rural areas of Western Australia and Queensland were selected for the survey in the study. These states were chosen as they both have large remote areas with geographically dispersed rural communities, and both have a long history of responding to the special needs of these communities (as evidenced for example, by both states' extensive distance education and health initiatives).

Professionals were chosen on the basis that they would be service professionals working in remote and rural areas of Australia and were selected from three 'sub-major', 'minor' and 'unit' groups of professionals listed in the *Australian Standard Classification of Occupations* (Australian Bureau of Statistics, 1997). Ten professional groups were selected for in-depth study (Column 3 of Table 1 below).

Table 1: Professionals chosen by Australian Standard Classification of Occupations

Sub-Major Group	Minor Group	Unit Group	
Health Professionals	Medical Practitioners	General Medical Practitioners	
	Nursing Professionals	Registered Nurses	
	Miscellaneous Health Professionals		Dental Practitioners
			Pharmacists
			Occupational Therapists
			Physiotherapists
	Dieticians		
Education Professionals	School Teachers	Primary and Secondary School Teachers	
Social, Arts and Misc. Professionals	Social Welfare Professionals	Social Workers	
		Psychologists	

The professionals were contacted by mail via the relevant government agencies which included the Education Departments of Western Australia and Queensland, and the Health Departments of Western Australia and Queensland. An anonymous postal questionnaire was developed and sent to selected professionals identified as working in a rural area. Rural and remote areas of Western Australia and Queensland were operationally defined by postcode, using the *Accessibility/ Remoteness Index of Australia* (ARIA) (Department of Health and Aged Care, 1999) developed by the *National Key Centre for Social Applications of Geographical Information Systems* (GISCA) at the University of Adelaide. The number of professionals surveyed, and the response rates are shown in Table 2.

Table 2: Numbers of professionals surveyed and questionnaire response rates

Profession	WA	QLD	Total	Returned	% Return
Dentists	120	110	230	50	22
Dieticians	12	4	16	8	50
Doctors	180	351	531	77	15
Nurses	1180 ^A	1918 ^A	3098	330	11
Occupational Therapists	79	224	303	80	26
Pharmacists	77	95	172	19	11
Physiotherapists	60	342	402	105	26
Psychologists	83	65	148	46	31
Social workers	135	0 ^B	135	25	19
Teachers	3513	2352	5865	527	9 ^C
TOTAL	5439	5461	10790^D	1267	12

A. 50% random sample (because of very large numbers)

B. This group was not included, as surveys were not posted out as intended

C. This is a conservative estimate as each school surveyed relied on the approval of individual school principals

D. 10900 less 95 'returned to sender' and 15 'other' professionals

Questions within the questionnaire sought to elicit information on:

- demographic data (e.g., age, qualifications, period of employment)
- needs, awareness, use and accessibility of professional development and support that uses the internet
- perceived IT competence
- benefits/drawbacks of professional development and support that uses the internet
- beliefs about the impact of the internet in ameliorating professional isolation
- perceived barriers to using the internet.

Questionnaires were returned to the researchers in post-paid envelopes. All data was coded by questionnaire item number and entered into the SPSS (*Statistical Package for the Social Sciences*) statistical analysis program. It was analysed using descriptive statistics, and graphically represented using bar charts and tables. As the study did not aim to make state-by-state comparisons, the data was not analysed or reported by state.

The interviews

While the survey was anonymous, one part of the questionnaire asked respondents to provide a name and telephone number, if they were willing to provide further information through interview. The purpose of the interviews was to probe in depth the issues and concerns raised in the initial survey. A general schedule of interview questions was used in the semi-structured interviews, but specific issues described in individuals' questionnaire responses, and further follow up issues resulting from participants' comments, were also explored in depth in the interviews. Questions included:

- What forms of professional development do you usually undertake?
- Do you feel adequately supported in your profession?
- Is the internet important for your professional learning? Why? Is it better than other approaches? What does it overcome?
- What would you like to see happen that would improve the way the internet could be used for your professional learning? Extra training? Better web site designs? Better technologies?
- [Is there any significant point that is highlighted on their questionnaire response that could be followed up?]

Twelve in-depth interviews were conducted with the rural professionals who agreed to provide further information. Interviews lasted between 20 and 40 minutes each. Interviews were transcribed for analysis. Themes and issues of concern were identified using the process of *data reduction, data display, and conclusion drawing and verification*, described by Miles and Huberman (1994). The data analysis of both the surveys and the interviews, sought to examine in detail the effectiveness of the internet in overcoming professional isolation, with an emphasis on: assessing rural professionals' *use* of web-based professional development and support resources; identifying professionals' perceived *benefits* of web-based professional development and support resources; and identifying professionals' perceived *needs* for web-based professional development and support resources. In particular, the data collected on professional use of the internet and the types of internet tools and functions used by the ten professional groups is reported here.

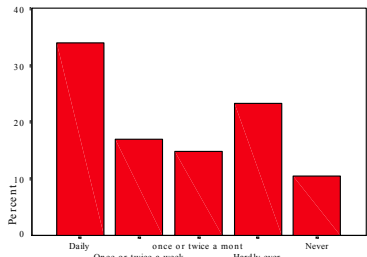
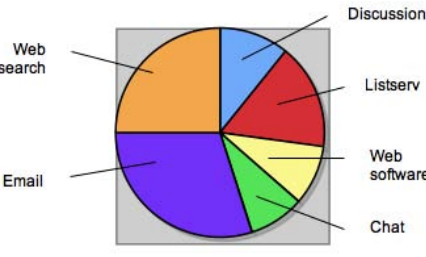
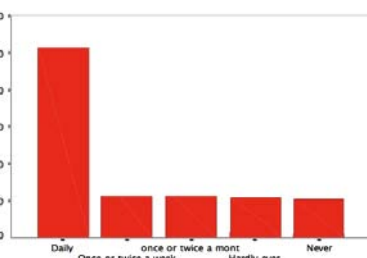
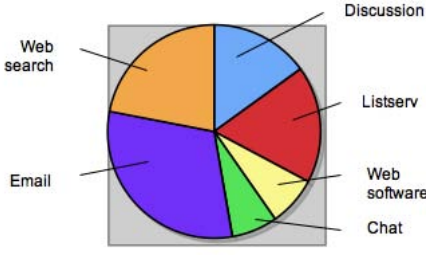
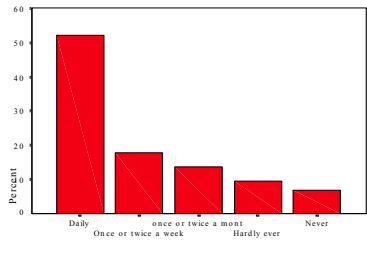
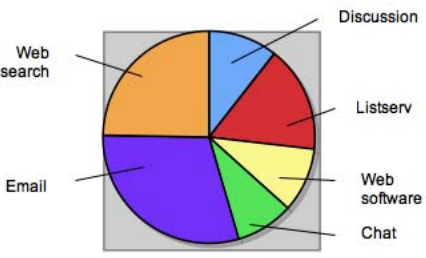
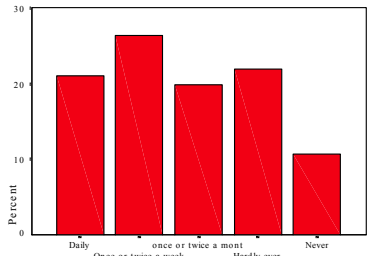
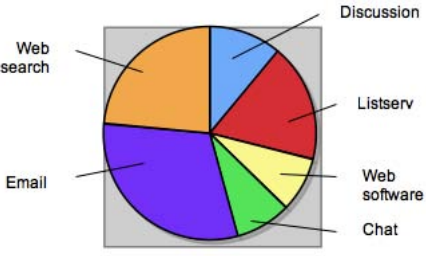
Findings

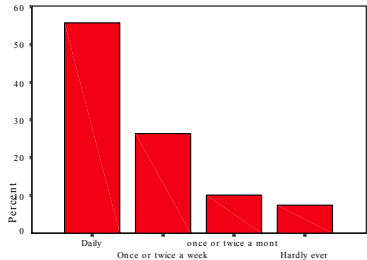
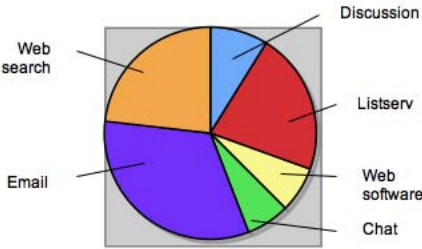
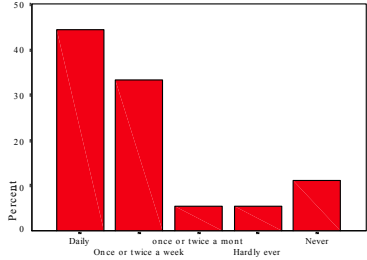
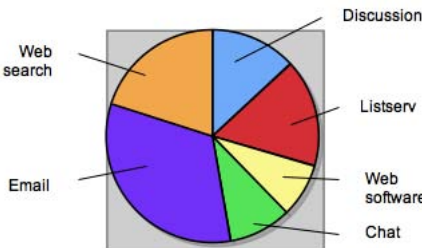
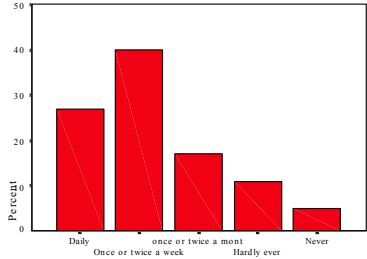
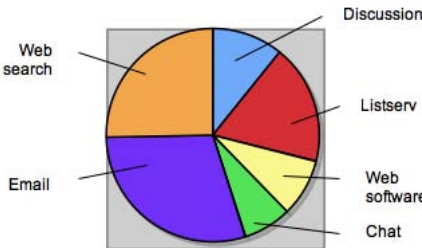
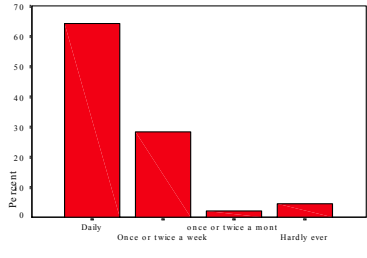
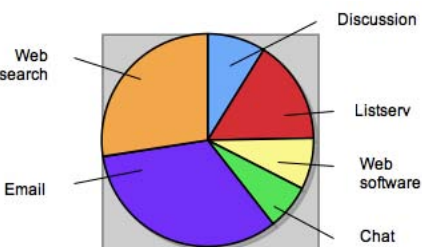
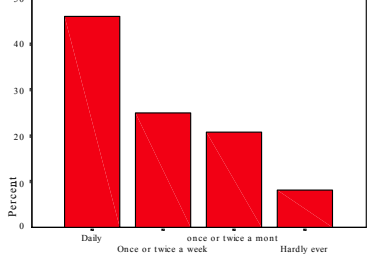
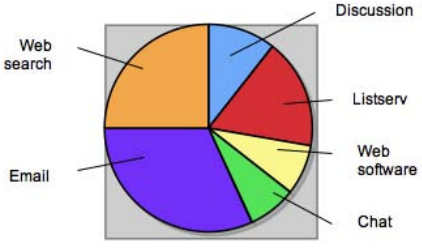
Concise findings of the study are presented here because of space restraints. A detailed report of the study is currently in press and will be published by the Rural Industries Research & Development Corporation (RIRDC).

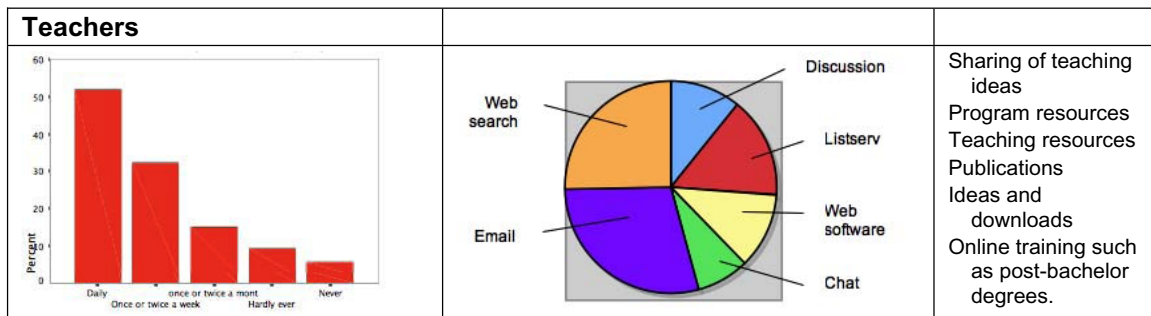
The findings of the research revealed some extreme cases of physical and professional isolation. For example, a social worker in Western Australia pointed out that he or she is: '[The] only social worker in health and community development in a geographical area three times the [size of] the state of Victoria'. Not all professionals felt unsupported, as many worked in schools and hospitals with a number of other co-workers.

Nevertheless, there was much evidence to suggest that internet technologies are used extensively by all the professions surveyed to extend and support their professional activities. Table 3 summarises the use of the internet by profession, together with the current use of internet tools, and the professionals' suggestions on how the internet assists with their professional learning.

Table 3: Frequency and use of the internet for professional development, by profession

<p>Who's learning? Who is using the internet for PD and how often? (Daily to Never use, left to right)</p>	<p>Whose technology? What is the current use of internet tools by professionals?</p>	<p>Uses How the internet helps in professional learning</p>
<p>Dentists</p> 		<p>Seminars, courses, online lectures Resources - published papers Advice, FAQs, online mentoring Networking and support for professional relationships</p>
<p>Dieticians (small no. of respondents)</p> 		<p>Access to resources Publications, information, and research reports Professional development courses and continuing education</p>
<p>Medical practitioners</p> 		<p>Access to resources Training Communication Networking and support for professional relationships</p>
<p>Nurses</p> 		<p>Resources Information on medications Practice protocols Continuing education self-directed learning Advice, FAQs, online mentoring Communication, networking</p>

Occupational therapists		
		<p>Access to resources - evidence-based practice resources</p> <p>Access to case studies</p> <p>Information on a condition or diagnosis</p> <p>Training - online courses</p>
Pharmacists		
		<p>Training - lectures online, city-based programs</p> <p>Access to resources</p> <p>Professional information (e.g., changes to the pharmacy and poisons act)</p> <p>Communication with colleagues</p>
Physiotherapists		
		<p>Access resources</p> <p>Update knowledge on syndromes</p> <p>Protocols, pathways, and handouts for patient care</p> <p>Training - journal clubs, business skills</p> <p>Professional discussions</p>
Psychologists		
		<p>Resources</p> <p>Treatment guidelines and education material for clients</p> <p>Training to upgrade qualifications,</p> <p>Advice and online mentoring</p> <p>Networking</p>
Social workers		
		<p>Access to resources (e.g., access to e-journals)</p> <p>Training - such as e-supervision</p> <p>Online post-graduate education</p> <p>Communication, networking</p>



These data reveal that the internet is accessed substantially by the majority of groups for professional purposes. Only teachers, psychologists, and medical practitioners could claim to more than half their numbers accessing it daily. Nevertheless, few professions had large numbers of practitioners who *never* used the internet. Pharmacists, dentists and nurses had the most substantial numbers in this regard, although as pointed out by one pharmacist, the nature of his or her daily work (i.e., running a busy shop front) largely prohibited access to the computer during the day.

In terms of the types of internet tools and functions accessed by professionals, as might be expected, email and web search engines comprise more than half the uses for most of the professions. Of the remainder, discussion boards and chat sessions for professional purposes were found uniformly across the professions. Listservs were also used by all the professions. All professions also had healthy numbers who used web software (such as *Dreamweaver*), and while this survey item included web publishing tools such as blogs and wikis, it must be said that at the time of the data collection (2004), few professional reported that they used these functions of the internet for professional purposes.

The broader study showed that while a great deal of web-based information and support was available for all the professions studied, professionals were generally aware of the types of support available. However, the reliable access to, and use of the internet to support professional development was a much more inconsistent finding amongst the professionals studied. The ability of professionals to avail themselves of professional development support on the internet was not always within their own control, and depended on a number of complex factors:

A time and place for professional development

The increasingly time-poor status of professions and the difficulty of achieving a satisfactory work/life balance was a repeated theme throughout the responses received from across the professions. Finding the time for professional development is seen as necessary but problematic. Often professional development is only offered in metropolitan areas where problems of distance and travel cost can make attendance difficult. Using the internet for professional development competes with daily duties because there is no physical separation from daily work or home to allow dedicated attention to such issues.

Access to the internet

While most professionals surveyed in this study had access to the internet either at home or at work, the quality of access varied considerably. While some professionals had individual computers and free and unlimited access to websites and resources, for most, various factors intervened to the point where access was sporadic or limited. Some professionals were limited by their employers to sites only available on an intranet, with no access to outside websites. The number of computers able to access the internet was also a major factor in accessibility: while many workplaces had internet connections the number of computers in many of the locations was far fewer than the number of employees, with many professionals sharing computers or waiting their turn. Some professionals were denied access to the internet at all times at their workplace, and any professional development on the internet was done in their own time at home.

Internet reliability

Frequently, rural and remote professionals were plagued with unreliable connectivity resulting from the use of superseded computers, power surges and outages, server unreliability and computer viruses. Many professionals also admitted to their own lack of computer literacy and knowledge of more than basic computing strategies and skills.

Benefits of the internet

In spite of these identified problems, professionals in rural and remote areas of Australia generally recognised the potential benefits of the internet in providing for some of their professional development needs. Especially for beginning professionals in rural and remote areas of Australia, access to resources relevant to their own profession was an issue of paramount importance. Access to codes of practice and policy documents would help beginning professionals to more readily learn what it means to be a professional in each area. Most professionals expressed a need for resources and information that relate directly to their practice. Downloading information and resources was the most common use of the internet among the professions. The survey responses highlighted the need to access the latest research in their field through professional online journals.

Most professionals value face-to-face professional development activities but the large distances and high costs of travel in some cases is prohibitive. The internet was perceived as an environment that could offer online courses, seminars, lectures for postgraduate qualifications and credit points for professional continuing accreditation. Many professionals requested online professional development that matched the face-to-face activities found in metropolitan areas. As well as training in areas of their profession, many indicated the need for training in computer-based skills. Email was the most commonly used means of maintaining professional contact. Professional contact through listservs was also recognised as a simple and convenient means of engaging in professional conversation, and a means of receiving professional support and advice, and professional supervision where this is a requirement. Many professionals also indicated the need for online mentoring and communication with more experienced colleagues.

Conclusion

Continual learning is vital for professionals to ensure that they stay up-to-date with current developments in their field, and they stay in touch with the practice of their craft. This is particularly important for individuals who are isolated, either geographically or professionally, through placement in rural and remote locations throughout Australia.

But who is learning? This study has shown that the internet has the potential to not only provide a vast array of resources to professionally isolated rural and remote professionals in Australia, but also to provide the means to more enhanced communication, collaboration and community building. Whose technology? Arguably, the technology is not yet totally in the hands of the practitioners. Current technological, institutional and social constraints associated with the use of the internet as a professional development tool, need to be addressed before it can more fully serve the development needs of rural professionals, and the communities and citizens they serve.

In effect, a range of practical, bureaucratic, managerial and technological factors intervene, on a day-to-day basis, to impede the effective use of the internet to resolve inadequate and unfair professional development opportunities across regional and remote areas of Australia.

References

- American Association of School Administrators. (1999). *AASA online advocacy*.
http://www.aasa.org/government_relations/ [viewed 10 July 2006].
- Anderson, J. (2001). *Stronger regions, a stronger Australia*. Canberra: Commonwealth of Australia.
- Australian Bureau of Statistics. (1997). *The Australian standard classification of occupations* (2nd Ed.). Canberra: Australian Government Publishing Service.
- Banks, G. & Togno, J. (1999). Telehealth in Australia: Equitable healthcare for older people in rural and remote areas. *5th National Rural Health Conference*. Adelaide. <http://www.ruralhealth.org.au/> [viewed 10 July 2006].
- Collins, T. (1999). *Attracting and retaining teachers in rural areas*.
www.ael.org/eric/digests/edore997.htm [viewed 10 July 2006].
- Department of Health and Aged Care. (1999). *Accessibility/remoteness index of Australia (ARIA)*. Canberra: Commonwealth of Australia.
- Foster, F., & Harvey, B. (1998). The recruitment and retention of speech language pathologists in rural Canada: Solutions to problems in the field. *Guidance and Counselling*. 13(2), 22-27.

- Hoover, J.H., & Aakhus, B.P. (1998). *Staying, leaving, and job satisfaction in a rural/remote state: A matter of roots*. 9 pp. ED417891
- House of Representatives Standing Committee on Primary Industries and Regional Services. (2000). *Time running out: Shaping regional Australia's future. Report of inquiry into infrastructure and the development of Australia's regional areas*. Canberra: The Parliament of the Commonwealth of Australia.
- Human Rights and Equal Opportunity Commission. (2000). *National Inquiry into Rural and Remote Education (Australia): Emerging Themes*. Sydney: Author.
- Lonne, B., & Cheers, B. (2000). Personal and professional adjustment of social workers to rural and remote practice: Implications for improved retention. <http://www.mala.bc.ca/ruralconf/blonne.htm> [viewed 10 July 2006].
- Miles, M.B., & Huberman, A.M. (1994). *Qualitative data analysis* (2nd. Ed.). Thousand Oaks, CA: Sage.
- Murphy, P., & Angelski, K. (1996). Rural teacher mobility. *Rural Educator*, 18(2), 5-11.
- National Rural Health Alliance. (2001). *2001 Election Charter*. <http://www.ruralhealth.org.au/> [viewed 10 July 2006].
- National Rural Health Association. (1998). *Physician recruitment and retention*. www.nrharual.org/dc/issuepapers/paper13/html.html [viewed 10 July 2006].
- Rabinowitz, H.K., Diamond, J.J., Markham, F.W., Nina, W. & Paynter, P. (2001). Critical factors for designing programs to increase the supply and retention of rural primary care physicians, *The Journal of the American Medical Association*, 286(9), 1041-1048.
- Regional Australia Summit Steering Committee. (2000). *Final report* http://www.regionalaustralia.gov.au/summit/outcomes/final_report/index.htm [viewed 10 July 2006].
- Striffler, N. & Fire, N. (1999). Embedding personnel development into early intervention service delivery: Elements in the process. *Infants and Young Children*, 11(3), 50-61.
- Sykes, D. & McIntosh, W.A. (1999). Telemedicine, hospital viability, and community embeddedness: A case study. *Journal of Healthcare Management*. 44(1). 59-71.
- Tomlinson, S. (1994). *Schooling in rural Western Australia. The ministerial review of schooling in rural Western Australia*. Perth: Education Department of WA.
- Westling, D.L. & Whitten, T.M. (1996). Rural special education teachers' plans to continue or leave their teaching positions. *Exceptional Children*, 62(4), 319-335.

Acknowledgements

This research was supported and funded by the Rural Industries Research & Development Corporation, Human Capital, Communications and Information Systems Research Program. Further information can be found on the RIRDC website at: <http://www.rirdc.gov.au/>

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