# Delivering Online in Regional Australia

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## Abstract

The growth of information, communications technology and advanced technology increases access to education and training for people in non-metropolitan Australia. However, access in non-metropolitan Australia brings with it its own barriers, including cost, physical provision of reliable equipment and infrastructure, long down-load times, and the difficulties of accessing technical support. There is limited knowledge about the extent of participation in online learning. This National Research Evaluation Committee (NREC) funded study is undertaken in two stages. The first stage, reported on in this paper, investigates the extent of uptake of online delivery in regional areas compared to metropolitan areas using quantitative data from providers in four States. Stage two will investigate the benefits and barriers of online delivery and learning for those living in regional areas and the benefits to regional communities that online learning may deliver by interviewing students, teachers and community members.

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Australian government policy has placed increasing importance on flexible delivery and, more recently, on online delivery. The development of technological infrastructure facilitating affordable access by all communities, learners and employers to online services and achieving connectivity in the delivering of training services (Harper Hedburg, Bennett & Lockyer 2000, p.10) was identified as a strategic goal by the Australian National Training Authority in 2000 (EdNA 2000). Llittle is known about how opportunities can be promoted and managed in regional communities, just as knowledge of the extent of the uptake of online delivery in regional and metropolitan Australia is uncertain. This is largely because of a lack of published information and the adoption of different models of implementation (Harper et al 2000, p.9). The problem of getting a snapshot of the extent of online delivery is exacerbated by different definitions of the term online learning (Brennan et al 2001, p.20).

This paper reports on the first stage of a National Research Evaluation Committee (NREC) funded study into the extent of uptake of *online delivery* in regional areas compared with metropolitan areas. Later stages of the project will explore the benefits of, and barriers to, *online learning* by those living in regional Australia, including ways in which the delivery arrangements for online learning may benefit regional communities. The paper will outline the aims of the research, provide working definitions, a brief overview of relevant literature and present initial findings.

## Aim of the project

The purpose of the study is to investigate the extent of uptake of online delivery in regional areas compared with metropolitan areas, the benefits from online learning and barriers faced by those living in regional areas. The objectives are to:

1. Map the extent of uptake of online delivery in regional and metropolitan areas of four States.
2. Investigate the benefits of online learning for individuals and communities in regional areas.
3. Investigate the barriers to effective use of online learning by those living in regional areas.
4. Report and make recommendations about overcoming barriers and promoting online learning opportunities in regional areas.

## Defining online delivery and online learning

For the purposes of this study a clear distinction is made between online delivery and online learning. *Online delivery* refers to a range of delivery modes where being online (eg. using email, WebCT, Blackboard etc) comprises, or is part of, the processes designed for learning. *Online learning* is defined as learning processes that use online delivery.

The distinction is important because learning is a socially situated activity where the relationship between what the individual learns and the situation and context in which knowledge is acquired and used, shape individual and collective cognition and practice.

## Challenges facing online delivery and learning

VET is a complex area, undergoing constant change and development in response to an increasing interdependency of education and the economy (Marginson 1997, P.152). Online learning brings with it additional challenges such as:

- Access to the appropriate infrastructure, both hardware and software (Corbett 1999; Oliver & Omari 2001)
- Meeting the skills and knowledge requirements for using and accessing the technology for learners (Frederico 1999; Lawless and Brown 1997)
- Continuing professional development for teachers (Sobski 1997)
- Equality of learning experiences and access between metropolitan Australia and regional Australia (ANTA 1996; Harper et al 2000)
- Ensuring that the learning needs of students are met to enable them to live and work with a sense of, and tools for, developing and maintaining control over their lives (Corbett 1999).

The successful delivery of large-scale, effective, and reliable online delivery depends heavily on effective desktop computing capabilities (both hardware and software); further growth in affordable broadband network (Corbett 1999). Some studies (eg. Oliver & Omari 2001) suggest that students undertaking online learning experience considerable difficulties with the technology such as access, broken web links and long download times.

Specific skills and knowledge appear necessary for effective learning and participation in online learning environments. Individuals must develop and employ necessary cognitive skills, in addition to those typically applied in ordinary instructional settings, for properly exercising learner control in multimedia environments (Frederico 1999, p 665).

> The development of these skills is centered around one's ability to make mindful navigational selections. While the ability to control one's instructional sequence can enhance learning and heighten attitudes and self-efficacy, unrestricted control and lack of learning goals can dampen the power of learning in such an environment (Lawless & Brown 1997, p.127)

This has obvious implications for students who do not have the necessary metacognitive and cognitive skills. It also highlights the need for full and effective feedback from teachers.

There is an assumption in much of the literature that online delivery/online learning (sometimes these terms are used interchangeably) automatically means that teachers become facilitators of learning (Vogel & Klassen 2001) or moderators (Feenburg 1989). Sobski (1997) maintains that planning for the use of the Internet must include provision for investment in staff training. Online delivery requires changing from lecture or demonstration to collaborative, socially situated learning (see for example Oliver & Omari 2001, Lally & Barrett 1999) which is democratic and highly interactive (Eastmond 1998, Khan 1997).

ANTA (1996, p.3) states that new technologies will be most useful where users are confident in using them to access information and resources. A major CRLRA study (2000a, 2000b, 2001) found many reasons why students in rural and regional Australia experience problems accessing flexible delivery, including online delivery. These included lack of computer skills, preference for face-to-face learning, inadequate literacy skills, being accustomed to a traditional classroom environment, being unable to negotiate courses and a lack of confidence.

## Benefits and barriers to online learning

The benefits of online delivery and online learning are considerable. Some recognized in the literature include:

- Providing additional skills for learners in collaboration, cooperation (Oliver & Omari 2001) and information technology skills (Make, Maki, Patterson & Whittaker 2000)
- Greater control and responsibility towards learning (Schrum 1998), challenging learners to develop new skills and reconceptaulise their identity as a learner (Harper et al 2000 p.25)
- Increased flexibility in meeting the needs of students with work, family and community commitments (Harper et al 2000, p.26) where participation is not bound by time and space (Holt, Kleiber, Swenson, Rees & Milton 1998)
- Reduced isolation for distance learners if the learning experience is interactive (Lally & Barrett 1999, Harper et al 2000)
- Making all responses available – where learning is interactive - allowing learners to build on the responses of others (Holt et al 1998, p.49) and learners have time to formulate responses their own responses
- Mhere collaboration takes place, community needs are better met (CRLRA 2000a, Kilpatrick & Bell 1998).

Many of these benefits are conditional on good access to reliable infrastructure (Harper et al 2000), well developed information technology skills in teachers and students (Harper et al 2000; Sobski 1997) and a pedagogy that values collaborative, collective learning and develops the necessary metacognitive skills (Harper et al 2000) of the learners.

As well as benefits, however, there are many barriers to quality online learning through online delivery. These include:

- A cultural shift may be required in resource allocation and pedagogy e.g. allocation of resources for professional development and appropriate systems (Weller 2000)
- Funding structures and policy (e.g. funding based on student contact hours or ‘annual hours curriculum’) do not necessarily support online development and implementation (Mitchell and Bluer 1996, ANTA 1998). VET capital infrastructure is mostly directed to bricks and mortar and not to learning technologies (Mitchell and Bluer 1996)
- There is a lack of infrastructure in rural and remote areas (Harper et al 2000). Broadband networks are not universal (Corbett 1999)

- Students may not have adequate literacy or computer literacy skills (Harper et al 2000) and metacognitive skills (Frederico 1999)
- Observation and intervention is more difficult than in a face-to-face context (Chen, Ou, Liu & Liu 2001)
- Coping with the volume of online data may be overwhelming (Holt et al 1998)
- Silent ('lurking') participants remain invisible to the group (Holt et al 1998)
- Interaction must be designed in (Snewin 1999).

Contrary to views of online learning as the panacea for the future, there is no evidence to suggest that online learning is better than other forms of learning - or that it is less expensive. While there are many benefits to online learning, there are many barriers to be overcome if this form of delivery is to successfully deliver quality learning. The implementation of national policy must address these barriers and recognise that online delivery only delivers quality online learning where it is properly resourced and supported.

## Method

The study uses a multi-method, iterative research design that moves from a quantitative mapping of the uptake of online delivery to a qualitative examination of selected cases to investigate barriers and benefits of online learning in regional Australian communities.

The purpose of the first stage is to gather descriptive information to inform the subsequent investigation of the benefits and barriers of online learning in regional Australia. Data on recent and current enrolments (1999-2001) in online courses/modules was gathered from providers in four States: Tasmania, Victoria, Western Australia and Queensland. Metropolitan and regional providers were included in order to uncover any differences according to provider location. Information was sought about students' courses and units/modules, stream, field of study and AQF level, previous education level, employment status, gender, age, Indigenous status, ESL and disability status and module completion status.

Stage two involves the selection of a number of courses with an online component for more detailed analysis of the benefits of, and barriers to, online learning. Summaries of existing course evaluations for the selected courses and interviews with trainers in these courses will supplement interviews with current and recent students. Interviews will also be conducted with stakeholders in four communities (geographical or professional).

## Identifying providers for study

The group undertaking the study comprises researchers from the Centre for Research and Learning in Regional Australia (CRLRA) in Tasmania, Bendigo Regional Institute of TAFE (BRIT) in Victoria, Tropical North Institute of TAFE (TNIT) in Cairns, Queensland and Central West College of TAFE (CWCT) in Geraldton, Western Australia. The intention was for each project partner to recruit one other (or two in the case of CRLRA) VET providers delivering online in their State. Non-TAFE providers were to be included where possible, however, extensive enquires uncovered very few delivering VET courses or modules online prior to 2001. Several intended to commence online delivery during 2001 or 2002. *Thus the first finding of the study is that outside the TAFE sector, online delivery of VET is still in its infancy.*

Tasmanian rural schools (TRS) commenced online delivery at the start of 2001 and thus a group of rural schools with online community services VET programs was included in the study. Other providers in the sample discussed in this paper are TAFE Tasmania (TAFE Tas), a multi-campus provider that is the only TAFE in the State, and Melbourne's William Angliss Institute of TAFE's (WAI) online delivery to VET in schools students.

## Preliminary findings

TAFE Tasmania and BRIT have the largest numbers of students studying online in the sample. The students are all those enrolled with the providers in units/modules with an online component in 1999, 2000 and 2001, with the exception of Tasmanian rural schools, which commenced online delivery of community services in 2001 (see Table 1).

**Table 1: Provider online delivery**

| Provider | No. of students in sample | Online courses |
|---|---|---|
| TAFE Tasmania (TAFE Tas) | 470 | Wide range, inc IT, business, firefighting, tourism, hospitality, building, library technician, engineering, law |
| Bendigo Regional Institute of TAFE (BRIT) | 431 | Dip Horticulture, Harness Racing, modules in electrical and electronics, mining safety |
| Tropical North Institute of TAFE (TNIT) | 209 | Wide range, inc IT, business, hospitality, tourism, workplace training, nursing |
| Central West College of TAFE (CWCT) | 174 | Wide range, inc IT, business, tourism, hospitality |
| William Angliss Institute of TAFE (WAI) | 162 | Hospitality VET in schools |
| Tasmanian rural schools (TRS) | 30 | Community services VET in schools |

Three TAFEs offer a wide range of fields and levels of study online, while the other three providers have specialised offerings. BRIT has the second largest number in the sample despite a limited online offering. *The study's second finding is thus that there is variation in the scope of online delivery by providers in regional and metropolitan areas.*

Obtaining consistent, comparable information from providers about enrolments in online units/modules proved to be unexpectedly difficult. Most providers had to run special programs to retrieve relevant data and in many cases, additional verbal information was sought from the departments teaching the relevant courses. Inconsistencies in the data and difficulties in retrieving it are evident in the large number of units/modules for which the field, stream and AQF level of the students are not known ( field of study 36%, stream 46% and AQF level 29%). *Thus the third finding is that research is hindered by the use of multiple procedures and criteria for the collection of statistical information about those studying online (and by other modes).*

Gender differences in the field, stream and AQF level of students tend to reflect the nature of specialized provider offerings. For example, Tasmanian rural schools offer courses online in the traditionally female dominated areas of aged, child and disability care and 93% of their

enrolled students are female. BRIT offers online courses in the traditionally male dominated fields of electrical engineering/technology, mining and harness racing and 81% of students are male.

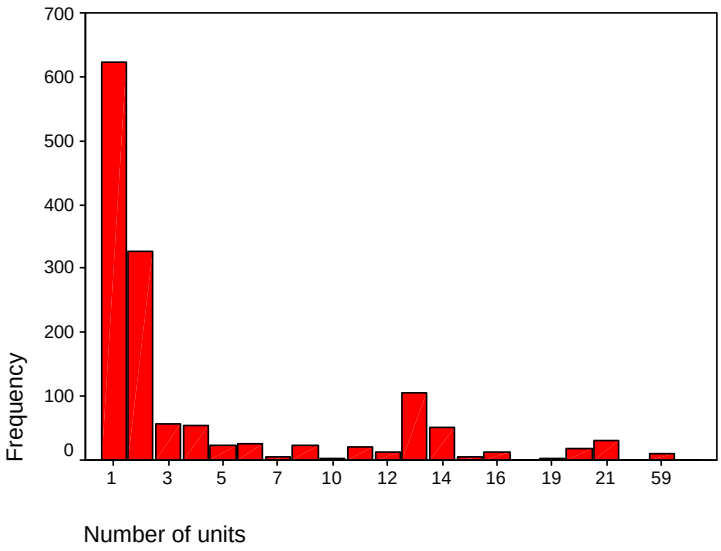
The previous education level of students is not available for the two VET in schools providers. Data from the other providers show that few students have post-school qualifications. The majority have completed at least year 11. BRIT and TAFE Tasmania have the largest proportion with only grade 10 or below (42% and 36% respectively).

**Student online study patterns**

The most common field of study within the sample is services, hospitality and tourism (21% of all students), followed by architecture, surveying and building, and science and information technology (both 11%). Business administration has 9%. Eighteen per cent of students are studying at AQF Certificate 2 level, 22% at Certificate 3 and 23% at Certificate 4.

Figure 1 shows that there is a considerable range in the number of units/modules undertaken by each student, but most students take only one or two units/modules with an online component. *Finding four is thus that student online enrolment patterns vary, but many enrol in only one or two units/modules with an online component.*

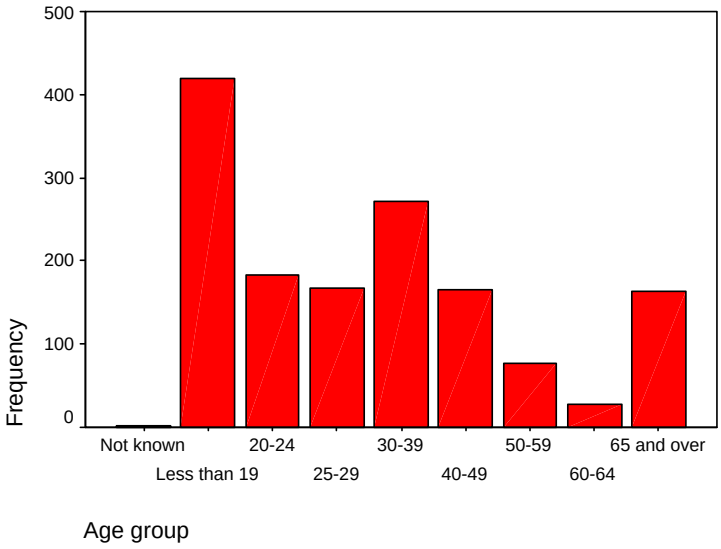
**Figure 1: Number of online units per student**




**Student characteristics**

Figure 2 shows that all age groups are represented among students in the sample, including a group aged 65 and over. Due partly to the VET in schools delivery of two of the providers, the largest group of students are aged 19 years of age and under. There is another large group of students aged 30-39 years.

**Figure 2: Students by age group**




A relatively large proportion of students are employed (see Table 2). The unemployed and those not in the paid workforce (including students not seeking part time or casual employment) are also well represented in the sample. There are slightly more males that females (Table 4). *Preliminary finding five is that online delivery attracts a wide cross-section of students in terms of age, gender and employment status.*

**Table 2: Employment status by provider**

| | | **Provider** | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Employment status* | *Count/ percent* | *BRIT* | *TNIT* | *WAI* | *TAFE Tas* | *TRS* | *CWCT* | *Total* |
| Not known | Count | 227 | 90 | 7 | 23 | 30 | 20 | 397 |
| | % within Provider | 52.7% | 43.1% | 4.3% | 4.9% | 100.0% | 11.5% | 26.9% |
| Employed | Count | 94 | 90 | 59 | 270 | | 78 | 591 |
| | % within Provider | 21.8% | 43.1% | 36.4% | 57.4% | | 44.8% | 40.0% |
| Unemployed | Count | 79 | 28 | 29 | 120 | | 43 | 299 |
| | % within Provider | 18.3% | 13.4% | 17.9% | 25.5% | | 24.7% | 20.3% |
| Not in paid | Count | 31 | 1 | 67 | 57 | | 33 | 189 |
| workforce | % within Provider | 7.2% | 0.5% | 41.4% | 12.1% | | 19.0% | 12.8% |
| **Total** | **Count** | **431** | **209** | **162** | **470** | **30** | **174** | **1476** |

**Residential location**

Table 3 shows that the sample is biased toward students residing in rural postcodes (as defined by the Australian Bureau of Statistics' classification), as is to be expected from the location of the providers and the focus of the study on online learning in regional Australia (see Table 3). However, with the exception of the Tasmanian rural schools, the regional providers have students who live in capital cities and distant rural and remote locations, and the city-based providers have students living in rural and remote areas. All providers have some 'local' students who reside in areas close to their campus, suggesting that online learning appears to be a choice for some students in metropolitan locations who have the

option of face-to-face classes. Finding six is that online students are geographically scattered in relation to the location of the provider campus.

**Table 3: Student residential location by provider**

| | Provider | | | | | | |
|---|---|---|---|---|---|---|---|
| *Residential location* | *BRIT* | *TNIT* | *WAI* | *TAFE Tas* | *TRS* | *CWCT* | *Total* |
| Local (capital city/ metropolitan) | | | 72.8% | 40.4% | | | 20.9% |
| Local (rural/remote) | 58.7% | 24.4% | | 50.9% | 100.0% | 77.6% | 47.9% |
| Non local capital city/ metropolitan | 6.3% | 54.5%* | | 4.9% | | 3.4% | 11.5% |
| Non local rural/remote | 35.0% | 21.1% | 27.2% | 3.8% | | 19.0% | 19.6% |
| **Total number of students** | **431** | **209** | **162** | **470** | **30** | **174** | **1476** |

* Note that many of these students reside in Townsville, which is classified as metropolitan.

Table 4 indicates residence by gender. Although numbers are small, the sample includes more females than males from remote locations.

**Table 4: Student residential location by gender**

| | | Residential location | | | | |
|---|---|---|---|---|---|---|
| *Gender* | *Count/ percent* | *Capital city/ metropolitan* | *Rural* | *Remote* | *Unknown* | *Total* |
| Female | Count | 228 | 394 | 36 | 32 | 690 |
| | % within location | 47.4% | 43.3% | 76.6% | 82.0% | 46.7% |
| Male | Count | 253 | 515 | 11 | 7 | 787 |
| | % within location | 52.6% | 56.7% | 23.4% | 18.0% | 53.3% |
| **Total** | **Count** | **481** | **909** | **47** | **39** | **1476** |
| | **% within sample** | **32.6%** | **61.6%** | **3.2%** | **2.6%** | **100%** |

## Discussion and conclusion

Preliminary findings from examination of enrolment data of six providers of VET online are:

- Outside the TAFE sector online delivery of VET is still in its infancy. Further investigation for the reasons is required, but barriers identified in the literature such as high infrastructure cost (Harper et al 2000), funding structures (Mitchell & Bluer 1996) and skills (Sobski 1997, Weller 2000) may explain this.
- There is variation in the scope of online delivery by providers in both regional and metropolitan areas. Some providers have built on face-to-face strengths to meet niche markets (for example the William Angliss VET in schools hospitality courses and BRIT's harness racing and small mining courses). Others are attempting to meet the wide-ranging needs of students who cannot study on-campus (for example TAFE Tasmania and Central West College of TAFE). The Tasmanian rural schools have used online delivery as an opportunity to share scarce VET teaching expertise and increase choice for geographically isolated students.

- Research is hindered by procedures for the collection of statistical information about those studying online (and by other modes). This has been noted by others (e.g. Brennan et al 2001) and is also a hindrance to planning and efficient use of resources. The implication of this finding is that the AVETMIS collection should be reviewed to ensure that data regarding online delivery is collected so that online delivery can be isolated from other forms of flexible delivery.
- Student online enrolment patterns vary, but many enrol in only one or two units/modules with an online component. Subsequent stages of the project will reveal whether these students take online units/modules alongside those with other delivery modes, are studying part-time, or have dropped out of online courses, and the reasons for this. Reasons for drop out need further investigation, but may include some of the learner and technical issues identified in the literature review as barriers to online learning.
- Online delivery attracts a wide cross-section of students in terms of age, gender and employment status, confirming that online learning is flexible for those with work and family commitments (Harper et al 2000; Corbett 1999).
- Online students are geographically scattered in relation to the location of the provider campus. This suggests that online delivery is able to meet the needs of students in regional areas and can increase choice for these students. Online learning appears to be a choice for some students who have the option of face-to-face classes. This confirms that online learning is able to deliver benefits of participation not bounded by time or space (Holt et al 1998).

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