7. ONLINE SERVICES IN EDUCATION

7.1 Overview

The uptake of online services in education is being driven by two main forces:

♦ development of pedagogical thought which emphasises the advantages of allowing the learner's needs and preferences to determine the time, place and form of the learning experience

♦ introduction of government policies which place education within a global business environment and look to ICS for cost savings as well as improvement of educational delivery.

Applications Identified

In order to focus on the ideas of use and effective use of online services, seven categories of educational activity (applications) are identified. They are:

1. Classroom/remote delivery
2. Management of learning
3. Professional development
4. Administration.
5. Development of learning resource materials
6. Collaborative projects
7. Information for prospective clients

These are supported by services that include the Internet, video conferencing, audio conferencing, proprietary learning management software used on networks or modem-to-modem, interactive telephony, and some stand-alone multimedia services.

We recognise that use of these services varies between schools, vocational education and training, higher education, and adult and community education, and between public and private educational bodies.

Status

Federal, state and territory governments are all strongly supporting the adoption of online technologies. DEETYA is strongly involved with the development of EdNA (Education Network Australia), an initiative which relates to all educational sectors, and has funded research on the use of technologies. ANTA is likewise funding development of online projects and professional development, and is investigating the use of capital funds for technology rather than bricks and mortar.

At State and Territory levels, the development of online programs and learning materials is being extensively supported. Virtual Campuses (of varying kinds) exist, or are in development, in Queensland, Victoria and South Australia. These types of development are supported in the strategic plans of government agencies. Private schools and other non-government educational organisations are also adopting online services both for the delivery and support of programs and also as a means of communication within proliferating consortium partnerships, both within Australia and overseas. Online services are breaking down geographical limitations both in the choice of organisation at which to enrol, and in the formation of organisational partnerships.

Consultation/Review

We have sought engagement with representatives from funding bodies and experts in the field. The degree of ownership of the project affects levels of engagement. In some ways it has been difficult to encourage a sense of ownership with service agency representatives in particular, as the report is clearly seen as CIRCIT work. Service agency staff are often working under a lot of pressures and are 'close to the ground'. They may resist a potentially comparative and critical report. We are therefore seeking to emphasise the developmental rather than comparative approach. We are also trying to convey the sense of mutual value in undertaking this research.

Issues

One of the most important educational developments over the last decade has been a clearer understanding that the needs of learners, their families and employers are varied, both in terms of content and pedagogy and in terms of circumstances of access. From this realisation it follows that no one method of delivery can or should be adopted as the most useful. Online services will continue to be used alongside and in combination with other methods. Two of the keys to their effective use seem to be understanding of the situations in which they improve educational quality (by opening up education to new markets or by improving quality of existing services) and where they reduce cost or enable extension of services within existing cost levels.

Ongoing Data Sources and Arrangements

The many online learning development projects are accompanied by a fair quantity of descriptions and case studies. Many of these include outcomes and learnings from the projects. Nevertheless, most of these case studies deal with individual projects, and there appears to be little formal data available on the uptake, use and effective use of online technologies. The expectations of governments about the benefits to be gained have yet to be validated. However, we believe that useful information on change issues may be obtained from these sources.

7.2 Access to, and Use of, Online Services

Measures for access and use to, and use of, online services, have been considered by categories including organisation, practitioner (teacher or other staff member), and user (student). The examination of access includes the concept of access in practice. So, for example, if online services such as email are available on one PC in a staff office containing five teachers, access in practice will be more limited than if each had a PC on their own desk.

Data on access and use has been sought, but has been difficult to locate. There are, however, some sources of data which are expected to be available in the near future. As examples, DEETYA has commissioned Griffith University to prepare a report called *Information Technology Skills of Australian Schools Students*; the Victorian Department of Education Leadership and Professional Development Centre conducted surveys in 1997 which may provide information on access issues; AARNet's current round of pilot projects will also provide valuable data.

7.3   Effective Use

The following consideration of the various applications of online services suggests ways to describe the state of development in this sector, and to examine "effective use", from the points of view of value to

♦   Users (Students)

♦   Practitioners (Teachers), and

♦   Providers

Application 1: Classroom/Remote Delivery

Classroom/remote delivery includes the imparting and acquisition of information, interaction with the information by learners, and interaction between learners and teachers. It includes online learning which takes place in a classroom or learning centre with a teacher and a group of learners; online learning in a group working remotely from the teacher; and individual learners working remotely. In many cases, online learning may be used in combination with other face to face or distance methods.

Development Status

The adoption of online technologies is a priority of federal, state and territory governments, in many cases aligned with whole-of-government initiatives. This direction is supported by policy frameworks such as 'Learning Technologies in Victorian Schools'. At the federal level, ANTA is working on the adaptation of funding models to support the adoption and implementation of learning technologies and flexible delivery models. DEETYA, AVCC and other bodies are sponsoring research on associated subjects.

Further support initiatives include EdNA and the various virtual campuses existing or in development.

Effective Use

Effective use of online services in education is considered to apply to all stakeholders. These include:

1. Users (defined as including learners, their parents and employers)

2. Practitioners (teaching staff; non-teaching staff such as administrators, librarians, counsellors, technical staff etc); and managers

3.   Education/training bodies
    ♦ Schools (government and non-government)
    ♦ VET sector registered training organisations
    ♦ Universities
    ♦ Adult and community education bodies
    ♦ Nationa/state government agencies.

For each of these groups an attempt has been made to understand the value they seek and to provide some trial measures of effective use. This information is summarised in Tables 1, 2 and 3.

Table 7.1: Trial Measures of Effective Use: From Viewpoint of Users (Students)

Indicator	Measure
Usefulness (in meeting needs):	
- Quality	• Acquisition and retention of competencies • Learning progress • Easier/more satisfactory access to education for existing groups • Extension of access to new groups
- Timeliness	• Availability with no or reduced waiting time
- Trust	• User trust in reliability of service • Willingness to use again; repeat usage
Affordability of service (incl. Cost effectiveness)	• Increased service with little or no additional cost • Reduced cost for existing services • Costs of access do not exclude groups or individuals
Ease of Use - Physical Accessibility, Comfort - Ability to use Interface - Social/organisational Preparedness to use	• Access in ways that suits time/place constraints, learning preferences, supports lifelong learning • Availability of suitable technical and administrative support, including support in learning how to use technologies • Personal interaction maintained with teachers and peers

Table 7.2: Trial Measures of Effective Use: From Viewpoint of Practitioners (Teachers and other Staff)

Indicator	Measure
Usefulness (in meeting needs):	
- Quality	• Perceived suitability for learners and programs, including suitable capacity for interaction • Contribution to learning outcomes
- Timeliness	• Contribution to timely preparation of programs, including just-in-time development and delivery
- Trust	• Reliability of service • Security of data
Affordability of service (incl. Cost effectiveness)	• Access provided by educational organisation
Ease of Use: - Physical Accessibility, Comfort - Ability to use Interface - Social/organisational Preparedness to Use	• Availability at own work-station • Availability of network/organisational support • Availability of suitable technical and administrative support, including support in learning how to use technologies • Shift from physical to online service • Acceptable implications for conditions of work, e.g. hours of duty

Table 7.3: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Rapid response to identified requirements of clients • Reduction in cost of service provision or increased provision for the same cost
Improved range of services	• Increased satisfaction of clients with range and quality of programs • Improved learning outcomes
Increased market access	• Ability to provide services to clients outside previous geographical range

Application 2: Management of Learning

Online services offer the opportunity for learners to submit for assessment at times of their own choosing, using draw-down assignments. This can be arranged by modem-to-modem transfer using proprietary software, or, increasingly, by web-based software which is much easier for students to use.

Online enrolment is available through a growing number of educational providers. In many cases, registration is done online while fees are paid and enrolment completed by more established methods. Possibly because of growing trust in web security, some institutions accept fee payment online.

Potential exists for online management of student records. This offers portability of records for students in a lifelong learning environment. Considerations both of data security and of students' confidentiality make this more a future development.

Development Status

Online management of learning generally is at a comparatively early stage, although development is progressing rapidly. The acceptance of computer-based systems in the 1980s and early 90s was slower than the acceptance of computer-based delivery technologies, possibly because of the cumbersome nature of dial-up systems and concerns about security. The greater ease of use of web-based systems is leading to greater uptake, though concerns about security of organisational systems, and confidentiality of students' records, remain.

Effective Use

Effective use in this category relates to users, practitioners and organisations.

Table 7.4: Trial Measures of Effective use: From Viewpoint of Users (Students)

Indicator	Measure
Usefulness (in meeting needs) - Quality	• Suitability for learning needs, including flexibility, reliability and timeliness of access • Ease of use, including need to acquire new skills • Contribution to learning outcomes
- Timeliness	• Availability whenever required
- Trust	• Contribution to overcoming barriers of time, place etc • Reliability of access • Security of data

Indicator	Measure
Affordability of service (incl. Cost effectiveness)	• Cost (if any) outweighed by convenience and useability
Ease of Use: - Physical Accessibility, Comfort - Ability to Use Interface - Social/organisational preparedness to use	• Ease of use compared with more traditional methods • Ease of use of software • Willingness to use/repeat use • Shift from physical to online service

Table 7.5: Trial Measures of Effective Use: From Viewpoint of Practitioners

Indicator	Measure
Usefulness (in meeting needs) - Quality - Timeliness - Trust	• Perceived suitability for learners and programs, including suitable capacity for interaction • Contribution to learning outcomes • Contribution to overcoming barriers of time, place etc • Availability whenever required • Effect on conditions of work (e.g. time, place, duration, accessibility; reduction of peak/trough workflows) • Access - availability, reliability, technical support • Security and reliability of data (e.g. proof against cheating)
Affordability of service (incl. Cost effectiveness)	• Access provided by educational organisation
Ease of Use: - Physical Accessibility, Comfort - Ability to Use Interface - Social/organisational preparedness to use	• Availability at own workstation • Ease of use, including need to acquire new skills • Confidence in effectiveness and security • Shift from physical to online service

Table 7.6: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Increase in customer satisfaction • Increase in staff satisfaction • Increased efficiency in processing transactions • Reduction of costs e.g. for outside exam supervisors, production of exam papers etc • Increased revenue through customer growth
Improved range of services	• Contribution to learning outcomes • More effective use of staff resources • Shift from physical to online service
Increased market access	• Ability to service clients at remote locations

Illustrative Examples

At Royal Melbourne Institute of Technology, the Local Government course is available online, and online registration is offered. A comprehensive registration form is completed online, on receipt of which an invoice for the enrolment fee is issued. Payment is made by cheque. Students are then sent a password which allows access to the teaching materials. Similar processes are used at Canberra Institute of Technology, Northern Territory University and elsewhere.

At Eastern Institute of TAFE, 'The Learning Manager' software is used for access to various types of assessment items.

Application 3: Professional Development

Professional development of practitioners includes pre-service training, all types of in-services training, credentialled and non-credentialled formal programs, and informal, self-directed learning.

Professional development has long been recognised, at least in theory, as vital to underpin quality in educational services, even though access to professional development has not always been easy for practitioners. However, recognition of the current environment of constant rapid change has led to a renewed impetus for professional development for teachers. In general, however, the same effort has not been put in to professional development for administrators, librarians, technical staff, student counsellors and others whose work is greatly affected by the advent of online learning.

A number of online professional development activities are available, mainly web-based. In addition, satellite television and video conferencing are used in some states. In general, it would seem appropriate that professional development specifically to do with a technology should make at least some use of that technology. Face to face interaction continues to be popular for some elements of professional development because of the immediacy of interaction it offers, together with reflective time away from the immediate pressures of work.

Development Status

Pre-service teacher training is predominantly conducted by traditional methods, though the teacher training institutions are recognising the need to incorporate online learning in their curriculum.

Inservice training is conducted by a number of methods, including satellite with telephone/fax interaction. The World Wide Web contains a number of sites with valuable collections of resources, such as the NCODE site, and SOFWeb in Victoria. Open Training Services has commissioned the development of a number of online professional development modules.

Though the National Staff Development Committee is now defunct, ANTA has included professional development in its priorities and has allocated substantial funding.

Effective Use

In this application, effective use is considered to be relevant for practitioners and organisations.

Table 7.7: Trial Measures of Effective Use: From Viewpoint of Practitioners

Indicator	Measure
Usefulness (in meeting needs) - Quality	• Access to up-to-date and relevant information and programs • Convenient access at place of work of home • Suitable forms of interaction
- Timeliness - Trust	• Timely upgrading of skills • Reliability of service
Affordability of service (incl. Cost effectiveness)	• Reduced cost for existing program services • Low cost for additional program services
Ease of Use: - Physical Accessibility, Comfort - Ability to Use Interface - Social/organisational preparedness to use	• Accessibility at or near own workstation • Availability of support, including technical and tutorial support • Shift from physical to online service

Table 7.8: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Improved quality of educational service • Increase in staff satisfaction • Reduced downtime required for staff upskilling • More effective use of staff resources • Better return on investment in staff training
Improved range of services	• Increased opportunities for staff upskilling

Illustrative Examples

The CLARET discussion list, hosted by Queensland University of Technology, provides a discussion forum for teachers engaging in professional development projects using action research. The focus is on how the action research leads to transformations of self, others and context - particularly the curriculum context of the school.

The Queensland Consortium for Professional Development in Education is a joint project by groups involved in education in Queensland to promote professional development for teachers and other members of the education community. It uses a web site to foster its aims, which are to:

♦ promote collaboration among providers of professional development activities in education;

♦ promote recognition of professional development for credit towards formal higher education awards and for career progression;

♦ act as a clearing house for information about professional development; and

♦ provide information about professional development activities in

education through the PD&T database.

Application 4: Administration

Online services are of value in administrative areas such as the circulation of memoranda and departmental instructions. Though the paperless office is in general drawing no closer, it is observable that email is tending to take the place of paper memoranda within organisations. The use of email has in some organisations led to a culture change about interactions across levels of the hierarchy. It has also changed expectations about how rapidly communications are dealt with, within and between organisations.

The World Wide Web as a means of disseminating information about policies and important developments offers immediacy, together with savings on printing and despatching large volumes of paper. Online methods can also make less burdensome the preparation and despatch to central offices of required statistical information, program profiles etc.

Video conferencing and audio conferencing save travel time and costs, while preserving immediacy of interaction. For groups of moderate size, it has been reported that the use of these technologies provides an additional benefit in that the more focused nature of 'virtual' meetings can lead to reduced time spent in meetings.

Development Status

Most educational organisations, with the possible exception of smaller private providers in the VET sector, have web pages which are used for internal purposes as well as presenting a face to the outside world. These vary from simple, 'contact details and basic references' type home pages to complex and sophisticated sites. Government agencies use their web sites for activities such as dissemination of policy, access to publications, and publication of tender information

Email is extensively used for administrative purposes in VET and universities; its use in schools is often hampered by restricted number of computers and, in some cases, absence of networks.

To a lesser extent, video conferencing is used for purposes such as staff meetings across campuses.

Effective Use

Effective use in this category is considered to apply to practitioners and organisations.

Table 7.9: Trial Measures of Effective Use: From Viewpoint of Practitioners

Indicator	Measure
Usefulness (in meeting needs) - Quality - Timeliness - Trust	• Improved ability to interact with colleagues and managers • Improved access to required information • Ease of interaction within and between locations and organisations • Improved efficiency of administrative systems • Rapid and timely distribution of information • Consistency and uniformity of data and systems • Reliability of networks
Affordability of service (incl. Cost effectiveness)	• Ready access provided by organisations
Ease of Use: - Physical Accessibility, Comfort - Ability to Use Interface - Social/organisational preparedness to use	• Easy access to PCs and networks • Ready availability of access information, e.g. email addresses • User friendliness, degree of ease in learning to use • Shift to online services

Table 7.10: Trial Measures of Effective Use: From Viewpoint of Organisations

Broad Indicator	Measure of Effective Use
Improved productivity/leverage	• Improved access to required information • Rapid and timely distribution of information • Ease of interaction within and between locations and organisations • Improved efficiency of administrative systems • Consistency and uniformity of data and systems • Improved intra-organisational communication • Satisfactory return on investment in technology, through greater efficiency and ability to offer quality service to clients
Improved range of services	• Easy access to PCs and networks • Reliability of networks • Ready availability of access information, e.g. email addresses • Ease of developing and maintaining systems and procedures
Increased market access	• More effective interactions with partner organisations and clients

Illustrative Examples

Charles Stuart University uses its web site to provide information for staff, prospective and existing students, potential clients of university services, and the general public.

The site includes documentation such as academic and administrative manuals which can be consulted online, committee papers and other documents.

It provides a source of downloadable forms for students, to be used for such purposes as enrolment variation and other course-related matters, booking for residential school accommodation, requests for interlibrary loans, and others.

There is also an online booking system for video conferences.

The university has developed a Web Policy for the guidance of staff members who place documents on the site, and it is in the process of developing a Web Publishing System, including customised software, designated responsibilities and quality assurance processes, together with related staff development activities.

Application 5: Development of Learning Resource Materials

While online services may be used for direct interaction between teachers and learners, and for access to the wider resources offered by the World Wide Web, they may also be used to provide access to specially designed learning resource materials. In addition to materials available in stand-alone technologies (such as CD ROM and print), they may be used online in computer labs, at home, or in the workplace. In some cases the online service may be used to transmit the materials between educational organisations rather than directly to learners. Online services may be used to support development of materials by members of virtual teams producing materials in consortium arrangements between organisations.

Development Status

All education sectors are rapidly increasing the amount of online materials produced. In the majority of cases units of material are produced within programs; entire programs available online are still comparatively rare. Small units of material may be produced by one or two teachers within an organisation. More ambitious projects typically involve a larger team, sometimes including instructional designers, web authoring and design specialists and other staff. In these cases the projects may also be conducted in partnership with other educational organisations or with clients including enterprises, professional associations and other bodies. In these latter cases staff time may be dedicated for a period to one or two development projects. It is still commonly the case, however, for development of materials to be undertaken as an addition to regular duties.

Specially developed authoring systems and platforms are used in some cases, but more often, commercially available software packages are used.

Where team members are in different locations, email is commonly used for communication and exchange of materials.

Effective Use

Effective use in this application is relevant to practitioners and

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organisations.

Table 7.11: Trial Measures of Effective Use: From Viewpoint of Practitioners

Indicator	Measure
Usefulness (in meeting needs): - Quality - Timeliness - Trust	• Ability to produce material suited to program and learners' requirements, including variety of learning and assessment strategies • Availability whenever required • Assistance in developing 'just-in-time' programs • Reliability of service in use • Reliability and sturdiness of materials developed
Affordability of service (incl. Cost effectiveness)	• Cost outweighed by convenience, useability • Cost recouped through additional enrolments
Ease of Use - Physical Accessibility, Comfort - Ability to use Interface - Social/organisational Preparedness to use	• Services available at user's workstation or other convenient location • Ease of use of software • Service supports interworking between locations/organisations • Willingness to use • Shift from physical to online service • Service supports/promotes interaction between team members

Table 7.12: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Ability to produce more or better learning materials • More efficient use of staff time • More rapid and efficient distribution of materials
Improved range of services	• Learning materials available to support wider range of target learner groups
Increased market access	• Increased ability to attract new markets • Additional attractiveness of programs due to support by consortia and partnerships

Illustrative Examples

Advance Online: Integrated Training System[1]

The Advance integrated training system has been developed as a syndicated research and development endeavour by the Computer Power Group. It is an online training delivery system consisting of the following major components:

♦   virtual classrooms

♦   online tutor support

♦   multimedia computer based training

♦   multimedia computer-based-training library

♦   video and data conferencing

♦   assessment

♦   frequently asked questions

Its basic objective is described as providing a learning resource that delivers customised training when, where and how you need it, i.e. just-in-time training (JITT). For marketing purposes the system is pitched at the medium to large end of the corporate sector because it aims to provide a complete training delivery package that can be utilised by any part of the enterprise for any type of training.

Application 6: Collaborative projects

Collaborative projects include joint ventures or consortia of universities or VET providers; universities and VET providers; schools with VET providers and employers; schools with universities; TAFE institutes with enterprise or other clients or with community providers. The project frequently consists of a small number of staff from each of the bodies concerned, as in the development of learning materials discussed above. The project may involvement development of programs or learning materials, delivery of programs, support of learners, research or other government-funded special projects.

In such projects email is a paramount means for exchanging and sharing documents, with password-protected websites another useful means. Project work also requires personal interaction between team members. Audio conferencing, video conferencing, Internet chat or discussion lists and, in some cases, audiographics are useful for these purposes.

Development Status

Collaborative projects are becoming increasingly important. They are encouraged by governments; they are viewed as important by providers in the globalised learning context; and they are inevitable in the growing number of cross-sectoral ventures.

Effective Use

Effective use in this context is of direct relevance to practitioners and organisations.

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[1]   Adapted from Mitchell J and Bluer R, 1997, *A Planning Model for Innovation: New Learning Technologies*, Melbourne: Office of Training and Further Education

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Table 7.13: Trial Measures of Effective Use: From Viewpoint of Practitioners

Indicator	Measure
Usefulness (in meeting needs): - Quality - Timeliness - Trust	• Enhanced ability to participate in leading edge projects • Enhanced quality of outcomes • Enhanced ability to share knowledge and expertise • Availability of service when required • Increased timeliness of project outcomes • Reliability of service
Affordability of service (incl. Cost effectiveness)	• Availability in place of employment • Time saving, e.g. reduction/elimination of travel to project group meetings
Ease of Use - Physical Accessibility, Comfort - Ability to use Interface - Social/organisational Preparedness to use	• Availability at own workstation or convenient location • Ease of use of software/hardware • Interworking between organisations enhanced • Willingness to use • Repeat usage

Table 7.14: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Enhanced quality resulting from ability to draw on strengths of all partner organisations • Improved productivity resulting from factors such as reduction in staff travelling time
Improved range of services	• Ability to offer greater range of programs
Increased market access	• Ability to reach new markets and offer localised services in a number of locations

Illustrative Examples

The MBA (Technology Management) and Graduate Diploma of Management (Technology Management) are offered jointly by the Association of Professional Engineers, Scientists and Managers Australia (APESMA) and Deakin University to provide postgraduate level management education for engineers and other technology professionals.

The program has been run in conjunction with Deakin Australia, the commercial arm of Deakin University, first as an independently accredited qualification and, since 1995, as a qualification jointly awarded by the APESMA and Deakin University.

The MBA and Graduate Diploma are offered entirely through distance learning, via print based material (printed learning materials supported by commercial textbooks), with a range of online support services.

A well-established educational support system has been available to students using a range of methods, based on telephone, fax and mail.

As a means of providing both cheaper and more timely communication systems for students, the APESMA/Deakin University MBA (Technology Management) program commenced its **Deakinet** service (providing Internet email connection between students, teaching staff and administrators) in 1995. Over the last three years the service has been progressively improved as new software and hardware has become available and as experience suggests the new directions to be taken.

The program commenced with an Internet email service for a pilot group from one unit in Semester 1, 1995; was extended to the first four core units of the program in Semester 2, 1995; and then to all units in the program from Semester 1, 1996. In Semester 2, 1996, a Web site was introduced and enhancements to the site, such as facilities for chat groups and bulletin boards, were added at the beginning of 1997.

Application 7: Information for prospective clients

Quality education depends not only on the ability of the educational provider to offer good teaching by whatever means are selected, but also on the ability of the learner (or the parents or employer of the learner) to select the most suitable program offered by a provider with the most suitable support and delivery mechanisms.

The VET sector in particular, because of the emphasis placed on the needs of employers as principal clients of the system, has recognised the need for education and training providers to offer information which will enable informed choices by clients. Other educational sectors, too, desire to attract learners who will achieve 'success'[2], and therefore want to ensure that prospective learners are well informed about what is on offer and how their learning process will work.

Such information may be disseminated by well-tried methods such as print or TV advertisements, distribution of brochures, information sessions and open days, and targeted marketing. World Wide Web sites now commonly have a promotional element as well as their uses for the community of the educational organisation. Kiosks are occasionally used, while interactive telephony is used by many organisations to provide information to inquirers.

Development Status

Online information for prospective clients is generally provided through web pages. Most TAFE providers and universities, many schools and some commercial providers have web pages. In general, information provided includes description of programs and services available, staff contact details, and in some cases forms to be completed for further details. In the majority of cases, there is an expectation (explicit or implied) that the services are available from a physical location. Cases where prospective clients can negotiate programs or services entirely by online means are rare, if they exist at all.

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2   It is not proposed to enter here into a discussion of what 'success' means in learning terms, but it is recognised that the word can be defined in many different ways in this context.

Information kiosks are used in a small number of cases, mostly on the premises of the organisation.

Interactive telephony is used to some extent to direct callers to correct sources of information.

No data has been located on the proactive use of online services with targeted prospective clients.

Effective Use

Effective use for this application relates to users and organisations.

Table 7.15: Trial Measures of Effective Use: From Viewpoint of Users

Indicator	Measure
Usefulness (in meeting needs): - Quality - Timeliness - Trust	• Availability of comprehensive, high quality information • Availability of information on request by user • Accurate, up to date, reliable information • Confidentiality of enquiry
Affordability of service (incl. Cost effectiveness)	• Cost of access justified by usefulness of information
Ease of Use - Physical Accessibility, Comfort - Ability to use Interface - Social/organisational Preparedness to use	• Convenience of location of information • User friendliness, no specialised skills required • Willingness to use

Table 7.16: Trial Measures of Effective Use: From Viewpoint of Organisations

Indicator	Measure
Improved productivity/leverage	• Increased business/enrolments resulting from availability of online information • More effective use of staff time
Improved range of services	• Improved ability to provide types of information to suit clients' needs in a timely manner
Increased market access	• Increased knowledge of the organisation by prospective clients

Illustrative Examples

The National Training Information Service (NTIS)[3] is a database developed by the Australian National Training Authority (http://www.anta.gov.au) in co-operation with State/Territory Training Authorities. The NTIS has been developed to provide direct access to current and emerging training market information and products in Vocational Education and Training (VET) in Australia. It presently holds detailed information on accredited courses/qualifications, endorsed competency standards and training organisations. In addition some further information is provided on Training Packages, new VET initiatives and useful links to other training related Web sites in Australia.

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[3] Reproduced from the website of the Australian National Training Authority at http://www.anta.gov.au/ntis/

7.4 Change Issues

The barriers to use of online services may be recognised and represented as "change issues", and become the focus of government policy and industry developments. Issues that studies and consultations have identified include:

Table 7.17 : Change Issues

Category	Issue
1. Related to organisations	
Attitude/disposition	Funding bodies and senior managers in organisations have expectations of substantial cost savings to be achieved by online services. It is not yet clear whether these expectations will be vindicated.
Skills - assessment - development - implementation/management	Managing the integration of online services into the suite of delivery channels of an organisation requires new skills.
Organisational capability Management of multiple channels Background systems	Flexible teaching methods require flexible administrative systems, e.g. enrolment systems that can accept new learners at any time; these tend to lag behind the teaching methods, and thus can impede them.
Understanding user needs	Organisational strategies need to be based on an understanding of the needs of staff and students.
2. Related to users (teachers and students)	
Awareness of potential use	Both staff and students need to be aware of the potential of online approaches
Access	Access for staff and students to software, hardware, networks
Skills	Skills needed by staff and students to use technologies
Attitude	Flexible patterns of work demanded by online services (e.g. unconventional working hours) require flexibility and support from managers, flexible attitudes on the part of teaching and other staff Some staff fear their jobs are threatened; others feel unprepared to cope with the demands of technology Some students resist newer methods of delivery because they have conservative attitudes to the responsibility of teachers to 'do the teaching'
3. Related to communications providers	
Infrastructure (network & terminal) availability	Cost of infrastructure is still seen as an impediment
Appropriateness/usability	
Standards/interworking	Interworking between sectors and jurisdictions may be a future issue
Functionality (e.g. security)	Effective resource-discovery (navigation) techniques

4. Policy/Regulatory	
Funding models	New funding models are required to allow capital funds to be spent on technology and infrastructure rather than bricks and mortar New performance indicators are needed to assess service delivery where there are no class contact hours in the traditional sense.