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Submission

by the National Centre for Vocational Education Research (NCVER)

to

House Standing Committee on Infrastructure and Communications

Inquiry into the role and potential of the National Broadband Network

The National Centre for Vocational Education Research (NCVER) collects, manages, analyses, evaluates and communicates research and statistics about tertiary education and training, and the links between education and the labour market more generally. Our vision is to contribute to improvements in Australia's education and training system by ensuring that policy and practice can be based on sound evidence.

RESPONSE TO TERMS OF REFERENCE

This submission presents evidence regarding the potential impact of the National Broadband Network (NBN) on the education and training sector through increased online delivery.

Online delivery

Internet based delivery of educational content has grown rapidly in recent years. The rollout of the National Broadband Network (NBN) offers the promise of a higher capacity, more reliable internet backbone. The provision of infrastructure such as the NBN will encourage the uptake of internet-based course delivery.

Table 1 shows that in the vocational education and training (VET) sector between 2007 and 2009, over 260,000 more subjects[1] were delivered through online/remote access delivery, but still represent only 5% of all subject delivery.

Table 1: Delivery mode of VET subjects by year, 2007-2009

Delivery type	2007		2008		2009	
Not applicable	424,034	3.4%	546,345	4.2%	699,169	5.1%
Online/remote access	468,218	3.8%	598,388	4.6%	728,939	5.4%
Other	1,189,859	9.6%	1,105,259	8.5%	1,115,678	8.2%
Employment based	1,358,022	11.0%	1,702,664	13.1%	1,814,807	13.3%
College/Campus based	8,900,556	72.1%	9,012,418	69.5%	9,237,489	67.9%
Total	12,340,689	100.0%	12,965,074	100.0%	13,596,082	100.0%

* Source: NCVER data unpublished, VET Provider Collection accessed through VOCSTATS: Subject table by year by delivery mode

Table 2 illustrates that online delivery is not uniform, with lower levels of uptake in Architecture and building, and higher usage in the Agriculture, environmental and related subjects and Education subjects.

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1 Students have many options for training and may study individual subjects or full courses that lead to formal qualifications.

Table 2: Delivery mode of VET by subject field of education, 2009

Delivery type	Online/remote access	% online/remote access	Other delivery mode	Total
Subject field of education				
01 - Natural and physical sciences	11,707	4.6%	244,481	256,188
02 - Information technology	22,732	6.4%	332,302	355,034
03 - Engineering and related technologies	95,482	4.5%	2,009,816	2,105,298
04 - Architecture and building	23,302	2.8%	806,472	829,774
05 - Agriculture, environmental and related studies	30,735	10.4%	263,388	294,123
06 - Health	80,419	5.7%	1,323,149	1,403,568
07 - Education	39,547	9.2%	388,873	428,420
08 - Management and commerce	195,833	6.7%	2,725,353	2,921,186
09 - Society and culture	65,275	5.2%	1,188,220	1,253,495
10 - Creative arts	15,982	3.4%	455,866	471,848
11 - Food, hospitality and personal services	35,570	4.2%	816,957	852,527
12 - Mixed field programmes	112,355	4.6%	2,312,266	2,424,621
Total	**728,939**	**5.4%**	**12,867,143**	**13,596,082**

* Source: NCVER data unpublished, VET Provider Collection accessed through VOCSTATS: Subject table by year by delivery mode

Turning to the overall tertiary education and training sector, in table 3 we see a similar picture, with around 280,000 Australian students (from a total of around 3.5 million students), or 8% of VET and higher education students received their education mainly via the internet, email or through some other form of online instruction. It is notable that universities are more than twice as likely to use online delivery (10%) as are TAFES and other vocational education institutes (5%).

Table 3: Main method of delivery for non-school qualifications enrolled in the last 12 months by institution, 2009

Delivery mode	University or other higher education institution	%	TAFE/ technical college/ vocational education institution	%	Other institution	%	Total	%
Classroom instruction, lecture, seminar, workshop or conference	1,079,784	74.5%	782,593	69.8%	523,356	55.9%	2385,734	68.0%
Reading materials	155,171	10.7%	147,473	13.1%	214,435	22.9%	517,079	14.7%
Audio/video cassette or DVD	1,827	0.1%	1,545	0.1%	7,730	0.8%	11,102	0.3%
Computer disk or CDROM	8,511	0.6%	10,964	1.0%	13,167	1.4%	32,642	0.9%
Tele or video conferencing	3,240	0.2%	958	0.1%	867	0.1%	5,065	0.1%
Internet/email or on-line instruction	143,329	9.9%	51,491	4.6%	83,843	9.0%	278,663	7.9%
Field training/work experience (on-the-job)	40,522	2.8%	118,877	10.6%	87,214	9.3%	246,613	7.0%
Other	16,865	1.2%	7668	0.7%	5312	0.6%	29,845	0.9%
Total	1,449,250	100.0%	1,121,569	100.0%	935,924	100.0%	3,506,742	100.0%
Traditional	1,275,477	88.0%	1,048,943	93.5%	825,005	88.1%	3,149,425	89.8%
Non-traditional	173,772	12.0%	72,626	6.5%	110,919	11.9%	357,317	10.2%

Note: Includes completed, incomplete and current non-school qualifications.

'Other institution' includes secondary school, business college and professional association.

'Traditional' implies classroom, reading materials, and field training/work experience methods.

'Non-traditional' implies all other methods.

* Source: Australian Bureau of Statistics, Survey of Education and Training, 2009.

NATIONAL CENTRE FOR VOCATIONAL EDUCATION RESEARCH LTD

Level 11, 33 King William Street Adelaide South Australia 5000
PO Box 8288 Station Arcade SA 5000
ph +61 8 8230 8400 fax +61 8 8212 3436
email ncver@ncver.edu.au web www.ncver.edu.au ABN 87 007 967 311

The other notable point in Table 3 is that vocational education and training is three times more likely to be delivered in-the-field or as part of work experience (on-the-job) when compared to Universities (10.6% versus 2.8%). These figures point to an important limitation of the internet in the delivery of VET qualifications. VET generally relies on more experiential methods of delivery, often delivered on-the-job. The remote nature of the internet, at least in its current technological incarnation, struggles to provide an adequate replacement for the benefits of proximity-based learning.

In Table 4, we consider the prevalence of the variously defined methods of delivery according to the level of qualification. Where we have good data regarding the level of qualification, we observe a monotonic increase in the use of the internet as the main method of delivery as the course becomes more advanced, from 3.1% for certificates I/II, to 5.8% for certificates III/IV, to 7.7% for diplomas and advanced diplomas. This pattern is also observed in universities, where students receiving postgraduate degrees are twice as likely to have studied primarily through internet delivery in comparison to recipients of undergraduate qualifications.

Table 4: Main method of delivery for non-school qualifications enrolled in the last 12 months by level, 2009

	Postgraduate degree	Bachelor degree	Advanced diploma/ diploma	Certificate III/IV	Certificate I/II	Certificate nfd	Level not determined	Total
Classroom instruction, lecture, seminar, workshop or conference	50.7	80.7	66.2	61.7	74.4	70.4	56.3	68.0
Reading materials	20.7	9.0	19.8	16.5	12.1	13.7	17.4	14.7
Audio/video cassette or DVD	0.1	0.2	0.1	0.5	0.7	0.7	0.0	0.3
Computer disk or CDROM	0.8	0.2	1.2	1.3	1.2	1.8	1.3	0.9
Tele or video conferencing	0.7	0.1	0.0	0.1	0.0	0.6	0.0	0.1
Internet/email or on-line instruction	16.7	8.1	7.7	5.8	3.1	7.3	12.1	7.9
Field training/work experience (on-the-job)	6.0	1.5	4.6	13.4	8.2	5.3	10.7	7.0
Other	4.3	0.0	0.4	0.7	0.4	0.3	2.1	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Traditional	77.4	91.3	90.6	91.6	94.7	89.3	84.4	89.8
Non-traditional	22.6	8.7	9.4	8.4	5.3	10.7	15.6	10.2

Note: Includes completed, incomplete and current non-school qualifications.

'Traditional' implies classroom, reading materials, and field training/work experience methods.
'Non-traditional' implies all other methods.
* Source: Australian Bureau of Statistics, Survey of Education and Training, 2009.

Two potential explanations for this trend are evident, both from a 'supply side' and 'demand side' point of view. First, as courses become more specialised, the potential to aggregate sufficient students into a class environment decreases. Hence, as providers seek to develop sufficient student scale, the use of online delivery becomes more economic.

An alternative explanation might be that students find online delivery innately more suitable for the delivery of more complex course material evident in higher level certificates and diplomas (within VET) and postgraduate degrees (within Universities), in comparison to lower level certificates (within VET) and undergraduate degrees (within universities) of a more technical or 'hands on' nature.

Furthermore, on-the-job training is most prevalent within the certificate III/IV graduate group (13.4%, compared to 7.0% overall). This level of qualification is generally required for licensed trades where 'on-the-job' assessment of skills and capabilities is an important aspect of VET delivery. This may again illustrate the potential limitations of online delivery in certain types and levels of VET courses.

Impact of online delivery on sampling and contact of respondents

The uptake of new technologies such as Voice over Internet Protocols (VOIP), and mobile phones at the expense of the more traditional telephone land line services, may be problematic for drawing representative samples and contacting individuals and businesses for surveys undertaken for NCVER. These include the annual Student Outcomes Survey, which uses a combination of mail out, online and telephone methodology to contact respondents, the Survey of Employer Views, which is a biennial Computer Assisted Telephone Interview (CATI) survey, and the Longitudinal Survey of Australian Youth, which also uses a Computer Assisted Telephone Interview (CATI) contact method. However, the NBN may provide a greater opportunity to gain a more representative sample through online collection methods if the NBN makes these new services more attractive and a more representative sample can be drawn from online methodologies.

Relevant research

NCVER commissioned a series of research reports relating to online delivery for the Australian Flexible Research Framework. These are summarised in a book of readings (Guthrie 2003) which describes how the VET sector explored ways of using the internet to help deliver more appropriate, flexible training to its clients.

Although this work is now somewhat dated, it does provide a valuable summary of a research conducted at this time on teaching practice and learners' views, operational issues, and online learning in companies and in regional and rural Australia.

Further information on the Australian Flexible Learning Framework can be found at:
http://www.flexiblelearning.net.au/

References

Guthrie, 2003, Online learning: Research readings, NCVER, Adelaide. Sourced February 2011 at: http://www.ncver.edu.au/publications/951.html