

# 2006 E-learning Benchmarking Project

E-learning in the traditional trades

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## 2006 E-learning Benchmarking Project

The Research and Policy Advice Project of the national training system's e-learning strategy, the Australian Flexible Learning Framework (Framework), is investigating the use of e-learning in traditional trades (eg building and construction; metals, electrical and automotive; and engineering and technical courses). This research aims to examine the common perception that e-learning is not suited to the delivery of training in highly practical areas, of which the traditional trades are an example. It will explore if, where and the extent to which e-learning is currently being used in delivery of trades training, and identify and showcase any innovative approaches that are being implemented. There are two components to this research.

The first is a qualitative research project being undertaken to illustrate the different uses of e-learning among providers of trades training, looking at different curriculum areas and aspects of the teaching and learning process (eg skills development, knowledge transfer, assessment). The project will develop a series of case studies and provide links to e-learning resources and information used by teachers of traditional trades in the vocational and technical education (VTE) system.

The second component, being undertaken as part of the Framework's 2006 E-learning Benchmarking Project (a sub-project of the Research and Policy Advice Project), aims to capture quantitative information on the uptake of e-learning in traditional trades, and compare this with the general uptake of e-learning in VTE.

The 2006 E-learning Benchmarking Project ran three national surveys during September-October 2006 to capture information about the uptake, use and impact of e-learning in VTE.

The first survey was targeted at registered training organisations (RTOs) and sought information on their general use of e-learning and provision of e-business services.

A second survey was targeted at VTE teachers and trainers, and asked them about their use of e-learning in training delivery, their access to e-learning resources and the way in which the use of e-learning had influenced their teaching practices and student learning outcomes.

The third survey was targeted at VTE students, and asked about their use of e-learning, its impact on their use of information and communication technology (ICT) and their employment prospects, and students' perceptions of the flexibility in training options made available through e-learning.

A full report on the 2006 E-learning Benchmarking Project, including the overall results and details on the survey methodology is available at the Framework's E-learning Indicators website at <http://e-learningindicators.flexiblelearning.net.au/index.htm>

In distributing surveys to VTE teachers and students, RTOs participating in the E-learning Benchmarking Project's 2006 survey that delivered VTE training in the traditional trades were asked to endeavour to ensure that 10% of all students and teachers sampled came from the traditional trades.

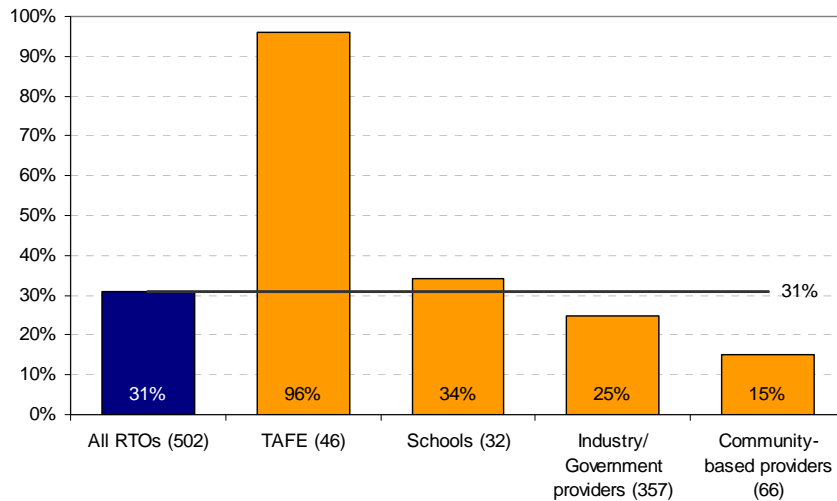
Within each of these surveys a number of demographic and/or supplementary questions were included to enable information to be obtained about the uptake of e-learning in the traditional trades. For VTE teachers and students this involved a question about their main area of teaching delivery or training.

The findings are presented in this report.

## Delivery of e-learning in traditional trades by RTOs

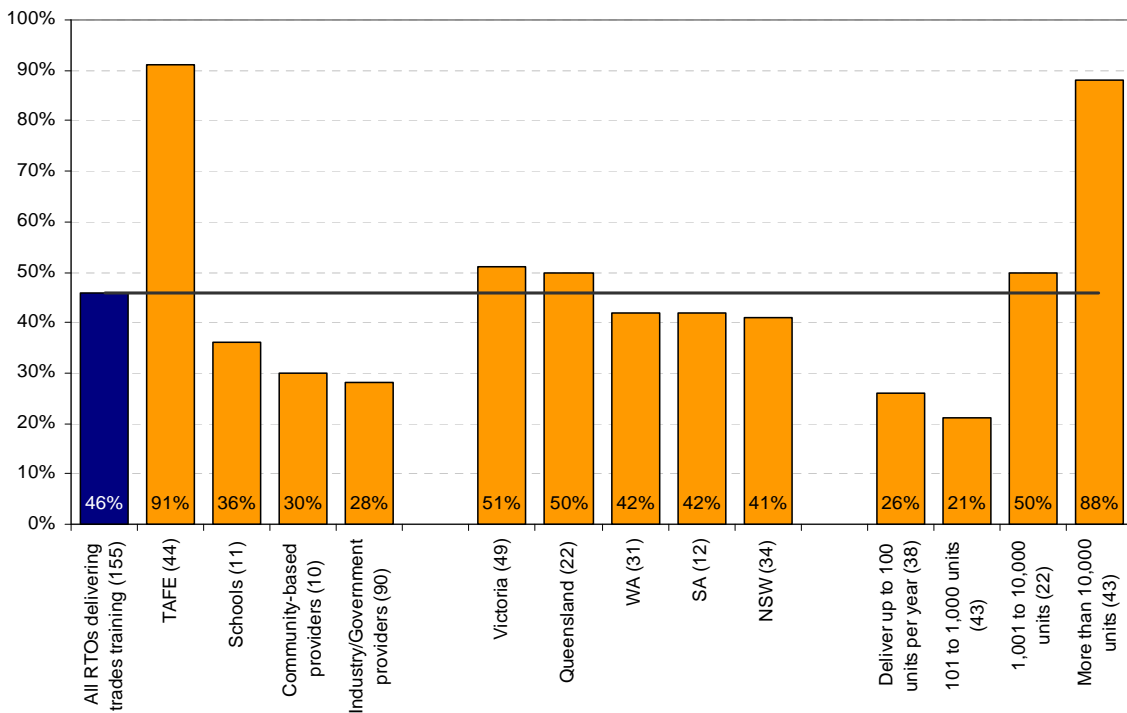
Of the 502 RTOs that responded to the E-learning Benchmarking Project's 2006 survey, 31% (155 RTOs) identified themselves as delivering vocational training in the traditional trades. This included TAFE institutes, schools, group training schemes and a number of other small to mid-sized industry-based and community-based training providers. However, with 96% of TAFE institutes reporting that they delivered traditional trades training, the balance was less in other areas.

**% of RTOs delivering training in traditional trades (by provider type)**



Of the 155 RTOs that identified themselves as delivering vocational training in the traditional trades (often among the many other types of training that they provide), 72 RTOs (or 46% of the total) indicated that they used e-learning as part of their delivery of training in the traditional trades.

**% of RTOs delivering training in traditional trades using e-learning (by provider type, State and size)**



While most TAFE institutes said they deliver training to traditional trades using e-learning, only about 30% of other providers use e-learning. There is also clearly a proportionally higher use of e-learning in larger organisations, many of which are TAFE institutes. The use of e-learning in traditional trades is fairly consistent across states, with Victoria and Queensland slightly higher than the percentage of RTOs using e-learning in Western Australia, South Australia and New South Wales.

For some providers e-learning was seen as natural part of their training program that added value to their students' learning.

*“The course uses software programs and simulations which are updated regularly and this enables the course to keep current and up-to-date. This helps to ensure the students are getting relevant information.”*

At the same time, 54% of providers do not use e-learning.

*“We do not use it as our training packages are practically based.”*

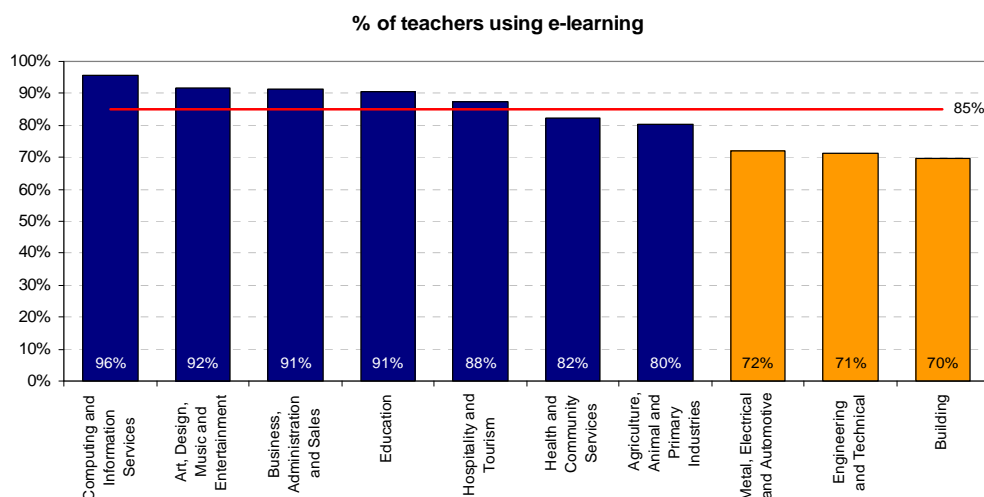
However, the main conclusion is that there is a solid proportion of RTOs delivering trade training that uses e-learning. The idea that there is no or little application for e-learning in training in traditional trades is not true. While this use is higher among TAFE institutes and other larger RTOs, there are still a considerable number of smaller and industry-based RTOs that are using e-learning. This is not to say that each of these organisations has a significant and deep level of uptake of e-learning across their trades training, but it is clearly happening.

## Teacher use of e-learning in traditional trades

One hundred and six teachers who responded to the national 2006 E-learning Benchmarking survey indicated that their main area of teaching was in Building and Construction (46), Metal, Electrical and Automotive (32), or Engineering and Technical (28). This represented 14% of the overall sample of teachers who responded to the survey.

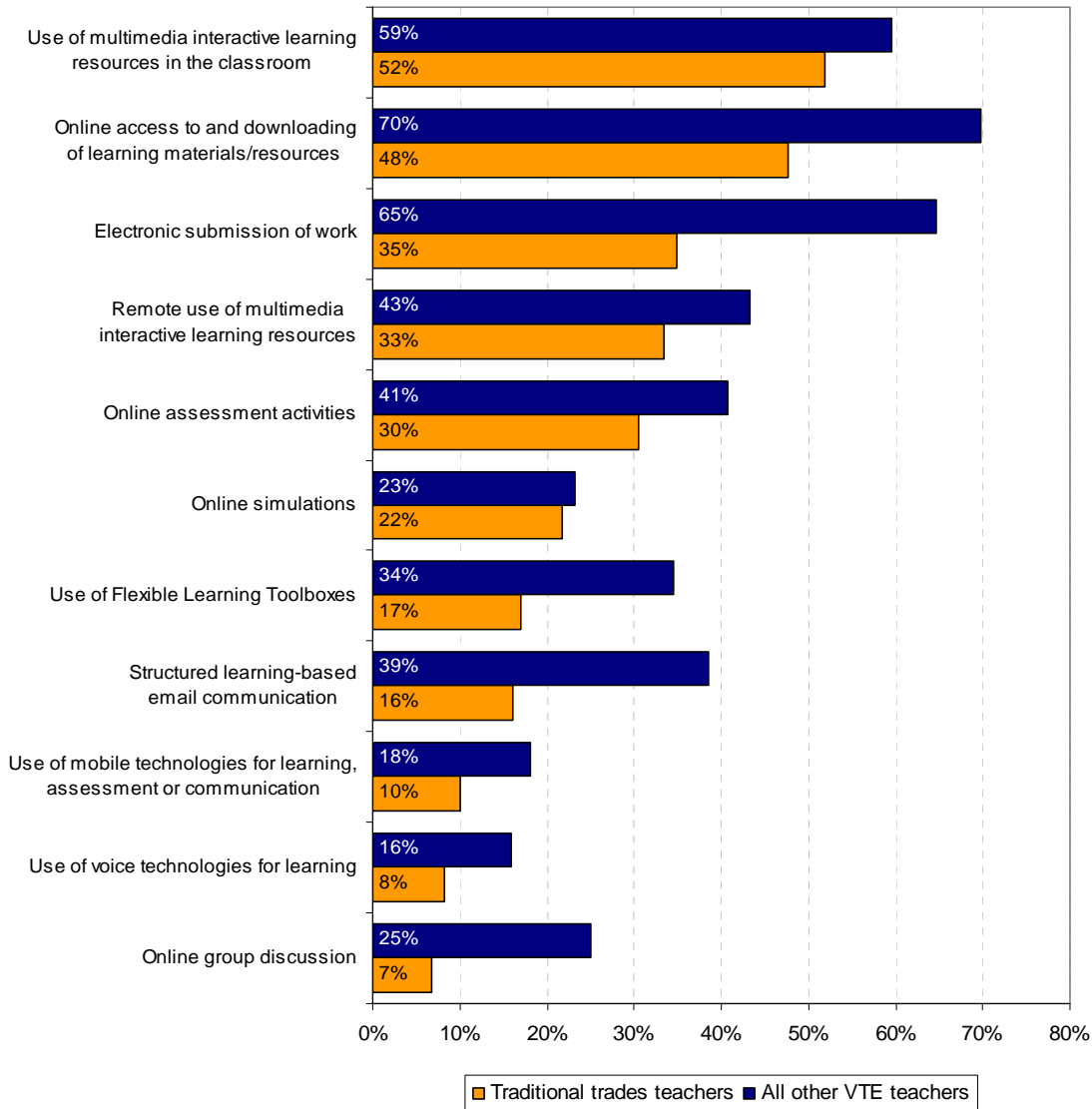
Ninety-five percent of these teachers were male, and they came from all States and Territories, with relatively higher numbers from New South Wales, Victoria and Western Australia. Seventy-eight percent of these trades teachers were from TAFE institutes, with the remainder drawn from schools, industry and community-based training providers.

Analysis of the uptake of e-learning by teachers in different fields shows that around 70% of all teachers of traditional trades use e-learning in some way. Whilst this is a positive finding, it is notable that the level of use of e-learning among trades teachers is somewhat lower than the average across all teaching areas (85%), and that in other teaching areas that more clearly lend themselves to the use of ICT.



Given this finding, the pattern of use of different e-learning approaches and techniques by traditional trades teachers is generally consistent with the national VTE average, although at a level that is 10% to 20% lower than the national average (see diagram on following page). That is, the most common forms of e-learning are the use of multimedia interactive resources in the classroom (52%) and online access to and downloading of learning materials and resources (48%). Electronic submission of work and online assessment are also used by around 30% of traditional trades teachers. However, less than 10% of trades teachers are using Web 2, voice and mobile technologies.

**Use of e-learning in VTE teaching**



*“I use CD-ROMs and videos for class training, and technical information from web pages and software programs.”*

*“Using project planning of ‘virtual projects’. Planning to use digital film-making.”*

*“At present most of my e-learning teaching applications are informal and unstructured in nature (eg use of commercially available blogs, websites, chats and forums.”*

It is notable that online simulations are one area where traditional trades teachers use e-learning to the same extent as all other teachers (approximately 22%).

*“Most of my e-learning teaching has involved the use of CD-ROM or online versions of the same information. The main advantage is to allow students to see complex mechanical processes in simplified action or computer simulation which could not be seen or presented using the actual operating equipment.”*

*“Mainly for simulations of complex principles, using applets. Used between 15-20% of total teaching time. Students agree that the use of applets greatly assists understanding of complex issues especially when several things are taking place simultaneously.”*

Trades teachers access e-learning resources through different means, with the most common source of resources their training organisation's own learning management system (as is the case with all teachers). Twenty-six percent of traditional trades teachers indicated that they accessed State/Territory-based e-learning resources and 26% also said that they accessed Flexible Learning Toolboxes (Toolboxes).

*“I have only recently been perusing through the Toolboxes on offer. I am really keen to access something that will keep the students captivated throughout the engineering (written) side of things.”*

Sixty-nine percent of traditional trades teachers report that they now have more access to e-learning resources than they did two years ago (versus 81% for all other VTE teachers), and 51% say that they now use more e-learning resources than they did two years ago (versus 72%). Importantly, 48% of trades teachers say that the e-learning resources they can now access have improved their teaching practices, and that these are flowing through to improved student learning outcomes.

*“Currently fostering the use of the TAFE Online plumbing site within the section, encouraging use by teachers and students. ... Use of e-learning in plumbing is in its infancy and plays an insignificant part in the overall learning at the moment. Those students who have accessed the Internet for additional plumbing material have indicated a positive experience.”*

Sixty-nine percent of trades teachers encourage their students to draw on more web- and computer-based resources. However, many of the qualitative comments from these teachers express a high degree of caution about the applicability of e-learning to their students.

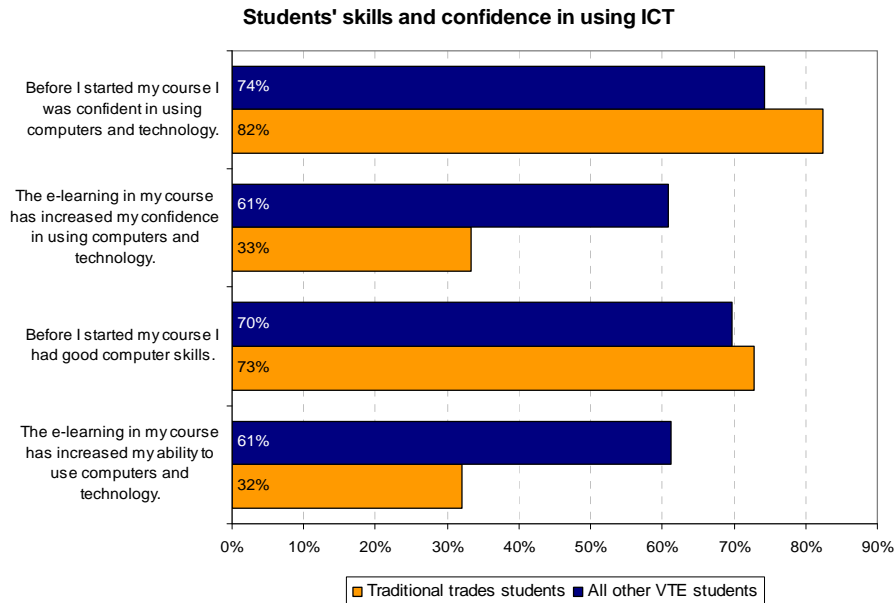
## **Student views on the use of e-learning in traditional trades**

Only 38 students who participated in the E-learning Benchmarking Project's 2006 survey (four percent of the total) identified themselves as undertaking training in the traditional trades. Twelve of these were doing a building course, 11 engineering and 15 metals, electrical or automotive training. All except one of these students was male and 27 were under the age of 25 years (71%). Twenty-two were TAFE students with the remaining 16 training with industry-based providers.

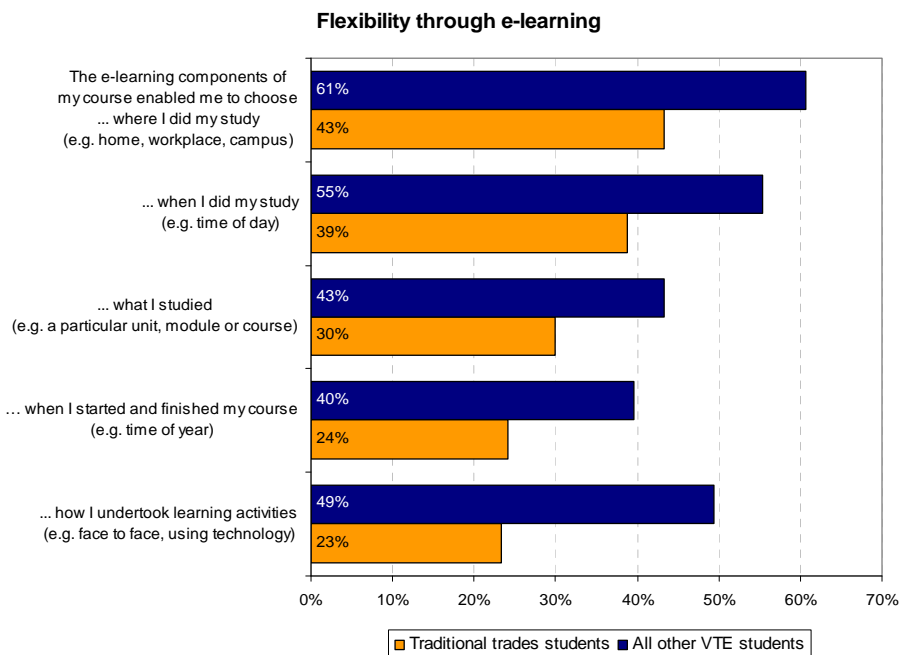
These students reported a lower level of use of e-learning in their courses than other students, consistent with the findings from the RTO and teacher surveys. Thirteen percent said that their course had “a lot” of e-learning (versus 28% for students from other fields) and 29% said that their course involved “some” e-learning (versus 32%).

The impact of e-learning on employment prospects and employment outcomes was not significantly different from the overall student population, with 54% of trades students saying that they thought the e-learning in their course would in the future help them to get a better job, get a promotion, or get more responsibility in their job (versus 60% for all other students), and 30% saying that they thought the e-learning in their course had already helped them to get a better job or other improved employment outcome (versus 28%).

However, with this lower level of use of e-learning in their training program, and with a significant proportion of young students who consider themselves skilled and confident in using ICT, the value to students in traditional trades of using ICT as part of their learning program was also not as high as in other areas. Only one-third of students from traditional trades indicated that they had increased their skills and confidence in using computers and technology as a result of the e-learning in their course.



Where more than half of all students in the E-learning Benchmarking Project's 2006 survey reported that e-learning had offered them some flexibility in what, when, where and how they studied, this was not the case for students from traditional trades. Forty-three percent reported having some flexibility through e-learning in where they studied, with this being a combination of learning in the classroom or at their training organisation's premises, in the workplace, and at home. Thirty-nine percent of trades students perceived some benefit in flexibility of when they studied with 30% or less having some choice in what or how they undertook learning activities. These responses were well below the average for all students.



Despite this, overall 48% of students from traditional trades said that based on their e-learning experience they would recommend e-learning to their friends or work colleagues. Whilst this is considerably below the overall student response of 66%, there were positive e-learning experiences that trades students wanted to share.

*“It enabled me to learn at my own pace. When I thought I was ready to attempt the exam it was possible and then I was able to move on to the next subject. The e-learning program works well because I stayed concentrated on the subject and finished as soon as possible with out losing concentration, which would result in a worse outcome in the subject.”*

*“More convenient as I could find the services to suit my particular needs and access the information without assistance from staff or lecturers.”*

## Summary

The analysis of responses from the E-learning Benchmarking Project’s 2006 survey clearly shows that e-learning can and is being used as part of delivery of VTE training to students in the traditional trades of building, metals and engineering. The surveys suggest that traditional trades teachers are increasing their use of e-learning and using it in many different ways to support their training delivery.

Forty-six percent of RTOs providing training in these traditional trades disciplines indicate that they use e-learning, and around 70% of trades teachers use e-learning. The most common forms of use are the use of multimedia interactive resources in the classroom and online access to and downloading of learning materials and resources, with some use of e-learning for online assessment, submission of work and online simulations.

These are positive findings and indicate that ICT does have a role in the development and delivery of engaging VTE training in traditional trades. At the same time it is true that the level of uptake of e-learning in the trades is not as high as it is in other fields, and that as it is currently used the majority of students are not realising any perceived benefits in terms of flexibility in their training.

The challenge for providers of traditional trades training, as is the case for the entire VTE system, is to continue to provide quality training and the flexibility needed to meet the training needs of individual students and employers. With the level of uptake of e-learning demonstrated through this project, there is clearly an opportunity for those trades teachers that have adopted the use of ICT and are trialling new and innovative ways of training delivery for their students to showcase and share their experiences with their peers in other training organisations.

## For more information:

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