NCVER

The development of quality online assessment in vocational education and training

Volume 2

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Australian *Flexible* Learning Framework
Supporting Flexible Learning Opportunities

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Publisher's note

This report has been organised into two volumes. Volume 1 contains the detailed report of this project.

Background

In August 1999, the Australian National Training Authority chief executive officers endorsed the *Australian Flexible Learning Framework for the National Vocational Education and Training System 2000–2004.* The Australian Flexible Learning Framework has been developed by the Flexible Learning Advisory Group and represents a strategic plan for the five-year national project allocation for flexible learning. It is designed to support both accelerated take-up of flexible learning modes and to position Australian vocational education and training as a world leader in applying new technologies to vocational education products and services.

An initiative of the Australian Flexible Learning Framework for the National Vocational Education and Training System 2000–2004

Managed by the Flexible Learning Advisory Group on behalf of the Commonwealth, all states and territories in conjunction with ANTA.

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Appendix 1 Project Reference Group Membership

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Appendix 2
Interview questions

Question 1: Comments have been made that online assessment (has) questions at the lowest common denominator level and trivialises content knowledge. Can you comment? (Icebreaker question)

Question 2: What factors influenced your choice in selecting the online assessment tool you are currently using?

Question 3: Can you describe your use of online technology to perform assessment?

Question 4: What are the benefits of online assessment for your learners?

Question 5: What are the benefits of online assessment for you as an assessor?

Question 6: What types of assessment are best done online?

Question 7: What are the principles of quality assessment in the online learning environment?

Are they different from to face to face?

Question 8: What are the possible impediments/challenges to achieving quality in online assessment?

Question 9: Have you implemented strategies to account for plagiarism in your assessment practices?

Question 10: Are there any comments you would like to add about online assessment?

Appendix 3 Applying quality online assessment in VET—fictional scenarios

A series of seven scenarios has been developed to help illustrate a variety of ways to incorporate online assessment into VET courses that are delivered both face to face and online. The scenarios can be used for professional development sessions as triggers for discussion, or to illustrate techniques and tips for developing online strategies.

The scenarios have been written as works of fiction to represent situations in technical and further education and private registered training organisations. Any similarity between the fictitious characters and real people is purely coincidence.

Scenario 1

Certificate IV in Business (Frontline Management)

Collaborative online assessment

Harrold and Wai Sim are old friends from university days. Both are now teaching business courses at two separate country colleges 150 kilometers apart, all part of the Westridge Community College Network.

One evening Harrold calls Wai Sim on the phone.

HARROLD: Hi. How are you? I hear you're teaching the Frontline management modules again this semester.

WAI SIM: Yes. It's good to have the opportunity to review your notes and anyway, the new Business Services Training Package has changed the competencies around quite a bit, so there's some new content to develop resources for.

HARROLD: I'm just about to start on the Leadership and the Teams modules this semester. I'm planning to get the students to work through some projects and activities as part of a team. But I have to say that my students are a bit sick of being put into teams in the classroom. They've all formed, normed, stormed and adjourned with one another twice already this year!

WAI SIM: Yes, same with my students. Hey, how about we get the students to form online teams across the two classes?

HARROLD: Sounds like a great idea but I don't know if all my students have access to a computer, let alone an email address. It's still not easy to get online out here, even though Westerhope is a moderately sized town, now.

WAI SIM: That's okay. We can still get them to work online at college. The colleges are linked by a network system. So although they won't be using the web for

connectivity, they will be online within the network's intranet. Can you get access to the computer lab on Tuesday evenings?

HARROLD: Yes, of course. What a great idea! We can have four groups of six; three students from my class and three from yours in each team. We can give them projects that they can research together …

WAI SIM: … and they can submit one joint project per team as the final assessment task. Perhaps we can get them to keep a diary of their interactions and experiences. They can reflect on the collaborative task, identify issues and stumbling blocks, and come up with some solutions for next time.

HARROLD: You must have a bank of tasks and projects for the students developed already, I guess. I certainly do.

WAI SIM: Yes, I do. We will be able to share resources. Fantastic! Sometimes I feel as if I can't possibly think of another scenario or case study.

HARROLD: What about their contribution to the team effort? How do we measure that? How do we tell whether or not a student has just coasted?

WAI SIM: Well, perhaps we can set a progress report task. Three progress reports per semester that have to be completed by a different team member each time. Naturally, they'll have to collaborate, communicate and negotiate to gather the information for the report. This will let us judge whether or not the individuals have been taking an active part in the learning process. The final project and all the intermediary tasks can be placed on the college server so that we can comment and assess their performance as they go.

HARROLD: We'll need to run our plans past our respective college managers' desks first, but I'm sure they'll approve! So, all we need to do now is sit down together online to plan the delivery and assessment for these two modules for the semester. Brilliant!

WAI SIM: I guess that we'll have to collaborate too, to reach a joint decision about the students' work, whose tasks we'll use, planning when the assessment tasks are due and all that.

HARROLD: And we'll need to develop a set of criteria for marking the assessments, but I'm sure we'll manage!

Online peer assessment

Harrold and Wai Sim have completed their first semester of collaborative delivery and assessment. They are now planning their next two modules for delivery, the Relationships module which deals with communications issues in the workplace and safety in the workplace.

They are speaking to one another on the phone.

WAI SIM: The Relationships module just begs to be delivered online in a collaborative mode.

HARROLD: I agree. Do you think we can combine Relationships with the Workplace safety module?

WAI SIM: Actually, I think it might work really well. Do you know the students well enough to know about their workplaces? I think that we can build on the make-up of the

students' own workplaces to develop some of the tasks around risk assessment and the hierarchy of control. What do you think?

HARROLD: Yes, that'd work. We only need eight different workplace scenarios and we can always substitute some of our case study examples if we don't have enough variety.

They can actually research some of the industry accident statistics online, too from the National Occupational Health and Safety database. We could set specific tasks for each of the teams to collect data and information from online and print based sources.

WAI SIM: We could set them a specific part of the *Occupational health and safety act* to research. Then they could be responsible for sharing the information with the class group. We could run through their presentations before they distribute them to check for accuracy, I suppose.

You know, we could tell each team to send their information to another team to check and comment on before the whole group sees it. Each team could then take an active part in the assessment of each group's work.

HARROLD: That means they would have to negotiate, build relationships and get their message across. We could have a competition between the teams. Each team would have to present their own work and the review of the other team's work.

WAI SIM: We'll just have to make sure it doesn't all get out of control! But I like this idea of using peer review and assessment. They'll learn how to give constructive criticism to their team mates and work colleagues.

HARROLD: And the fact that they will be researching and delivering information to one another is not just part of all the Frontline Management Inititative modules, but it'll be a great workplace and life skill.

We do have our work cut out for us, planning these two modules.

WAI SIM: But it'll be rewarding. And I suspect that the conflict they learn to deal with may be real, not just a case study! I think we will definitely need to learn good facilitation and negotiation skills here!

HARROLD: Well, there's nothing like a challenge to spice up your life, is there?

Scenario 2

Endeavour College—Marine and Seafood Industry courses

Online assessment plus challenge testing

The background

Endeavour College in the seaside town of Pacifica has developed a reputation as the Australian college to attend if you want qualifications in any industry or activity that is ocean- and seaboard-related. The college offers courses in a diverse range of subjects such as diving, aquaculture, fishing charter operations, boat building and underwater welding. Qualifications on offer include a variety of qualifications from the Seafood Industry, Marine and the National Outdoor Recreation

Training Packages. Students can also study to obtain their boat licences; merchant seamen can obtain their master's tickets.

The college has been expanding rapidly. Due to marketing activities aimed at overseas markets, a large percentage of students now come to the college from China, Africa and India.

In the initial stages of marketing, a team of representatives travelled to the targeted countries to identify opportunities and to establish relationships with overseas colleges. The colleges have enabled subsequent teams to provide potential students with print-based and practical tests before being accepted and placed by Endeavour College into a range of appropriate marine and seafood industry courses.

The issue

The down side of this testing is the strain it places on the Australian staff and Endeavour College. Whenever a team travels overseas the classes are short several teachers for whom the novelty of travel is rapidly wearing off. Also, continually sending a band of teachers to exotic destinations is costly.

The solution

During the past year, a team of developers has devised a series of online tests to assess the students' readiness for the advanced level marine industry and seafood industry courses in Australia. The tests assume a basic level English literacy and numeracy skills. They provide the applicants with a range of scenarios and case studies that require short answers. In effect, they are designed to gauge underpinning skills and knowledge related to the courses the applicants are planning to attend. They are a useful measure for the college to ensure that the students are placed in classes appropriate to their prior learning and experience. The tests are available initially at a college location but in the future will be accessible from a secure website in any environment.

The hands-on testing will take place at a participating overseas college and will be monitored by identified graduates from Endeavour College who have also attained their Certificate IV in Workplace Training and Assessment and who have up-to-date industry experience. The hands-on tests are designed to examine the applicant's ability to diagnose and repair common faults.

There was some initial concern from teachers at Endeavour about the potential for cheating if the online tests were available freely. The college acknowledged that there was indeed opportunity for the students to cheat. However, as the students will be performing hands-on monitored practical tests, those students who had not completed the online tests themselves would soon be identified.

The outcome

The initial testing went very well and the first classes of students enrolled in the Certificate IV in and Diploma of Transport and Distribution (Marine Engineering), the Diploma of the Seafood Industry (Fishing Charter Operations) and the Diploma of Transport and Distribution (Maritime Operations) are all progressing with enthusiasm.

The added benefits of the testing has meant that Endeavour College is now planning several lower-level courses at certificate III to cope with the demand from those students not yet ready for certificate IV or diploma qualifications within the Marine and Seafood Industry Training Package.

Endeavour College is enthusiastic about the outcome so far and is preparing to seek out further overseas opportunities.

Online testing with accompanying simulations

The background

Endeavour College has been delighted with the results of its online testing to date. The testing has meant that students have been placed in classes appropriate to their level of ability and prior learning. As a result, students have had a productive and challenging experience at Endeavour College. There has been a significantly high course completion rate with the majority of students gaining their qualifications.

The college is making a name for itself around Australia as the college for ocean-related industries. The marketing team realises that there is a lucrative market for Endeavour's products and services right at its back door. The team discovered that, although there is a demand for its courses, the strongest interest in Endeavour College is in the possibility of recognition for some of its courses.

The college believes that by offering recognition at a reasonable price to Australians, the college will be investing in the future. Those who wish to gain further qualifications and training will enrol at a later date. They will be more likely to go back to the college which provided great service and which has developed an enviable reputation for training.

The challenge

Recognition can often be a costly and time-consuming process. As Endeavour will be offering recognition at a relatively low price, the mechanism for assessing the candidates' skills must be efficient as well as being reliable, valid and fair.

The college identifies the initial courses to be offered for recognition using a risk management approach. A team of instructional designers and content experts work together to design a set of online guidelines for recognition assessment. They then design an online self-assessment quiz.

The online quiz is linked to specific competencies, but to make it easier for applicants, the team bundles competencies into qualification groupings. There are many philosophical discussions amongst the course development and delivery team during the design of this tool. The issues are about accessibility for the applicant and equity for all.

Initial research by Endeavour College has shown that applicants will generally be applying for the full qualification. The tool has been designed so that similar competencies within a qualification are grouped together. This means that often, one set of evidence might suffice for more than one or two competencies.

However, the qualification packaging rules are quite broad. The applicants could have any of hundreds of permutations of competencies that would make up each qualification, not to mention a proportion of competencies from completely different training packages. There is a concern that an applicant might rule themselves out of the qualification just because they could not meet one specific criteria, without realising that another competency is similarly valid.

In the end, the self-assessment online resource has become quite sophisticated. The applicant will be able to select from a set of criteria to make up the qualification. The software will process the package and create the personalised self-assessment kit.

Although costly and complex to program, the college is happy with the product. The online quiz will be available both at selected venues around the country and online within a secure website. Applicants will need to contact the college, pay their fees and obtain a password before downloading the self-assessment tool. By controlling access with a password, the college is hoping that they will be able to track applicants effectively and provide follow-up and support.

Workplace assessors

Each applicant who selects recognition will need to either complete a face-to-face challenge test in a simulated workplace, such as in a participating college, or nominate a workplace assessor who can verify the applicant's ability and skills. Simulated assessment tasks were considered to be too expensive to develop and are also difficult to access through phone-up modems.

All assessors are required to have the Certificate IV in Workplace Training and Assessment. Workplace assessors can register on Endeavour College's website. As an alternative, Endeavour College will fund an assessor to travel to each location and be available to attend the applicant's workplace during a set period of time. This solution has the added benefit of giving the college an even higher profile within the industry nationwide.

The result

Enrolment enquiries in Endeavour's courses in distance and block delivery mode have increased exponentially. These are early days. The full benefit, if any, of this initiative will not be realised for some time. However, the increased publicity has raised the profile of the college and demands from potential overseas students have certainly increased.

The online assessment tool has also attracted publicity and there has been interest from other registered training organisations looking for customised versions to be developed to address specific qualifications on their scope of registration.

The verdict all round is positive.

Scenario 3

Living Goodness integrated self-assessment and performance reviews

Online self-assessment plus online and face-to-face training

The background

Living Goodness is a successful Australian-owned manufacturer and distributor of herbal products. The chief executive officer of Living Goodness, Tarquin Peters, believes in providing continued support and training for his employees. Tarquin has recently established a training section within the organisation with three employees, Val, Leon and Anita.

Val has performed all the necessary preliminary work to enable the organisation to become a registered training organisation. So far, Living Goodness has several qualifications from the Business Services and the Information Technology Training Packages on its scope of registration.

Leon has managed the implementation of a computer resource that records individual statements of duties against staff names and current competencies. All statements of duties are linked to training package and industry competencies.

Anita has been involved in information workshops to help all staff understand that the computerised record system is an opportunity, not a threat. The organisation is not using the system to sack staff who 'fail', but rather to give every employee the opportunity to gain qualifications and to provide a transparent career path.

The operations

Staff at the company will have the opportunity to access their statements of duties and the set of related competencies at all times. Online self-assessment is available to allow personnel to rate their own ability, skills and knowledge. There is also a facility to help employees put together an electronic portfolio to ensure that they have the necessary evidence available when they apply for recognition.

Staff are also being encouraged to discuss their career paths with Val and Anita from the education and training team. The team will identify the set of competencies these workers will need for further work opportunities. Promotions and pay rises are incentives to those who complete online and in-class training programs to achieve higher work-related qualifications.

An added benefit of the system is the linked performance management system that provides each employee with an online statement of achievement. As each person meets agreed performance standards and targets, the form can be completed automatically and relevant evidence attached.

The reality

The staff were suspicious at first. They thought that this new system was a way to dismiss workers who are not up to scratch. Tarquin has conducted a series of short discussion sessions with small numbers of staff. He has assured them that the system is there to help staff gain qualifications that they are already more than qualified for. With the help of Leon and Anita, he identified a handful of personnel who meet the competencies for the Certificate III in Business Administration. By using this group as real examples, he has demonstrated how easy the system is for staff to access and record their workplace evidence.

Formal training sessions explaining the basics of competency-based training have given staff a better understanding of the process. Hands-on training on the system itself has also taken place to show staff how to self-assess and gather sufficient evidence. Further hands-on training demonstrating access to the online training and assessment will be rolled out over time.

Tarquin is optimistic that the whole system will create a better trained workforce and will give staff a chance to get recognition for skills they already have. He also hopes that the system will ensure that performance reviews will become more regulated and less susceptible to bias.

From the company's point of view, the fact that staff can work through the process at work is a bonus.

The future

The company has recently spent money on the development of a simulated call centre. The organisation wants to add the call centre competencies to their scope. Living Goodness has some great call centre personnel who are as yet unqualified. By using the simulated call centre, they can assess their skills against the competencies and apply for recognition for specific qualifications.

Further benefits of the simulator include allowing call centre personnel to practise handling hostile calls and the company to assess the skills of new employees in a simulated environment.

Although the simulator was an expensive investment, Living Goodness believes that the money has been well spent. Staff receive essential training and can practise their techniques and skills on the simulators.

Scenario 4

A discussion about setting up online between an 'old hand' and a 'newbie'

Chris and Lorraine met recently at a national conference exploring the issue of online delivery. Lorraine works in the university sector while Chris works in a medium-sized VET sector registered training organisation.

While at the conference, Chris tells Lorraine that he is yet to try out the online experience with his students. Lorraine offers to become Chris's mentor and suggests that they meet once a month to discuss how things are going. Chris says that he needs to meet before he even begins, to make sure that his students are in no way disadvantaged by his lack of knowledge. Lorraine agrees and they meet in a quiet part of the university campus one morning.

LORRAINE: Hi Chris. When do you start with your online class?

CHRIS: Hello, Lorraine. Next semester and I'm a bit anxious, to tell the truth. How do work out whether your students can cope with the online environment?

LORRAINE: Well, you don't know for sure but the fact that they have chosen the online mode as opposed to face-to-face means that they have probably considered the options. You're delivering a face-to-face class simultaneously, aren't you? The students do need to be quite motivated and should be able to plan their time well if they are going to complete the course. They also need to have a level of competence and familiarity with computers.

CHRIS: They'll need an email address, too, won't they?

LORRAINE: Yes. We're lucky at the uni. All students are given an email address when they enrol whether they are enrolled on campus or off campus.

In my classes, I try to organise a face-to-face meeting first up for all my online students, if at all possible. I find that if the students all meet first, they are then much more likely to take part in the threaded discussions and any other discussion tasks. This is important for me and for them, as I do take into account the type and frequency of online contributions in the overall assessment of the course. Of course, I do advise them that this is a small but important factor that contributes to their overall grading.

CHRIS: Threaded discussions? That's where someone makes a comment and others can contribute by adding statements and comments for everyone to see, isn't it? How do I do that?

LORRAINE: You need to speak to your online manager to see what sort of system is being used to manage the learning at your college. Here we use WebCT and there are a whole load of support people to help with setting up chat facilities and threaded discussions. That's not all though, we're also able to add support materials, links, suggested timetables for study, assessment events and their timing and weighting, plus a rogues' gallery where the students, me and my colleagues all place their mugshots and a couple of statements about who we are and so on.

CHRIS: So you let the students know right upfront exactly what they have to do, and by when for their assessment? I guess we do the same but having ready access to the assessment tasks would be really handy, wouldn't it?

LORRAINE: Planning for assessments is just as important for you. After a while, online students expect rapid response and detailed comments on their submitted reports. Some even send you their drafts for comments before they formally submit them. If you want to provide that sort of formative feedback, make sure all the students know it's an option and how to organise it.

But you need to get some sort of ground rules about the issue of rapid response for email questions. If you don't give the students a window of time when you will respond to queries, then they'll expect replies within 24 hours no matter what day of the week it is! Also, if you have many similar queries, you might like to develop a FAQs (frequently asked questions) site so that students can scan the site first to see if anyone else has asked the same questions rather than writing to you all the time.

CHRIS: But it is meant to be more flexible, isn't it?

LORRAINE: Yes, but not to the point of it becoming unmanageable for you.

CHRIS: You said earlier that the students find it easier to contribute to the discussion if they have met face to face. That makes sense, do you have any other suggestions?

LORRAINE: If you speak to your online manager, see if there is any chance of giving your students the option of contributing with a pseudonym. Obviously, you need access to the real name/pseudonym link so you know who's who. Some people find it much easier to contribute with a different persona. For some cultures it is disrespectful to question your teacher. I find that some of my Asian students, for example, will be able to discuss issues with me in great depth if they do it under a different name.

CHRIS: Boy, I thought online was supposed to be the easy option!

LORRAINE: No way, it's probably more time-consuming and therefore more costly. But it's a great experience and there are some really interesting revelations on the way. See you again in a couple of weeks time?

CHRIS: Yes, I'd appreciate that!

A discussion about collaboration and communication in online assessment

Chris's online class has begun. He organised a face-to-face meeting for all the students. Those from out of town were able to attend several TAFE campuses that allowed them to join the class by video link.

Chris wants the module to be learner-oriented and he would like to enable some interaction and online communication between those students who request it. The online courseware the college is using is an almost self-contained piece of software that allows the students to work through the study with minimal support. Although Chris believes that some people may be happy with that arrangement, he wants to build in some more collaborative assignments, some discussion and some peer assessment to suit all the learners' styles and needs. Chris also feels that he would like to be actively involved in the learning and not just as a knowledge source.

Chris thinks that he needs some early feedback to let him know if any of the students are struggling before they just drop out. He feels it is time to speak to Lorraine again.

LORRAINE: Hi Chris. You want to develop some online questions, is that right? As part of the formative assessment?

CHRIS: Hello, Lorraine. Yes, I thought some multiple-choice would be good. Students could do the quiz, make some decisions of their own about what areas of study they need to focus on and I could keep track of their performance and provide a bit of direction and some study hints.

LORRAINE: Look that's a great idea. You can even program the answers to appear right away with some explanation for wrong answers of course, and some reinforcement for right ones. But just make sure you realise just how long it takes to develop the questions and answers—and the accompanying explanations. If you had a couple of colleagues delivering the same course, you could pool resources and share the work

CHRIS: I have some multiple-choice from the last couple of years' face-to-face classes. I could use those as a starting point. Then, I guess, I can add to the data bank each year. I will speak to my colleagues, too.

LORRAINE: Do you have any support from your college?

CHRIS: Oh yes. We're trialling a new learning platform at the moment so I have become part of the trial. They monitor all the things I have difficulty with and will use the information as the basis for a manual. I'm not sure if I should be flattered or offended, but at least I have support!

So far, I have set up a FAQs page and there is an area for threaded discussions. Plus, the students can see the suggested study plan, the assessment tasks for the semester and can chat informally to one another in a chat space.

I've also got a resource page where I put readings and such. Some of the students have added to that already. I have also made it clear that each student must contribute to the threaded discussion based on an area of the course. We're in the process of negotiating how these contributions to the threaded discussion should be assessed.

LORRAINE: Are you going to use the contributions to the discussion topics as part of the summative assessments?

CHRIS: I decided that 10% of the overall mark for the semester should be for contributing to the threaded discussions. It actually caused me some anguish, thinking about the appropriateness of assessing the online discussions. We have to prepare our courses to map against units of competency. Some of my colleagues suggested that contributing to threaded discussions was not a valid assessment criteria.

After some debate, I realised that the evidence guides within the competencies stated that communication should be performed through a range of mediums and technologies including by phone, email and fax, so it fits in there as well.

LORRAINE: I usually place about 20% to 25% of the overall mark on the discussion but perhaps 10% would be more appropriate for the VET sector. I'm examining a completely different set of skills and knowledge.

It's great for the students, being able to contribute online. By taking part in the discussions, students keep up to date with the subject, do the readings and draw some conclusions of their own.

You know, you could make use of the online environment by setting several problems that are open-ended. Rather than the students working individually, they could try to solve the problems as a team. Each student could use their knowledge of a particular facet of the problem to help build the answer or solution. It takes a while to set this up but it's a good way of assessing their team skills

What do you think of that?

CHRIS: I like the idea. Actually, they could examine regular issues throughout the course, couldn't they? How about I set a question for teams to respond to online. Then each team posts their response and everyone else comments, adds, and refutes it and so on. This also addresses some of those important key competencies.

I'll have to work out how I assess it and then make sure the students know what criteria I'll be using to assess them. Now that they're more used to working online it should be okay, but if I'd tried it at the beginning of the course, I think they might've found it too hard and a bit intimidating.

LORRAINE: About the assessment, ask the students how they think it should be marked. How much for the initial response and how much for the critiques.

CHRIS: That sounds good. They'll get a lot more out of this than they probably think they will.

LORRAINE: Keep me posted, won't you?

CHRIS: Of course, and thanks!

Scenario 5

Web design in the classroom—an interview

This is a transcript of an interview that took place between Brad, an information technology teacher at a small specialist information technology college in a major city and Fiona, a post-graduate education student at the local university. Fiona is writing a comparative piece about online assessment strategies for the student journal *Palimpsest*.

FIONA: What are you teaching that has got you excited?

BRAD: I have a class at the moment, mostly young kids just out of school. We're doing a web layout and design course. And naturally, the subject just has to be assessed online. They put their webs on the college secure site, learn how to upload and all that, and then they all have an opportunity to critically evaluate each other's work.

Actually, I make sure that they each develop a set of criteria first to judge the work. We talk about the criteria and decide whether one set fits all. That naturally leads on to looking at different webs for different purposes and we discuss that together.

FIONA: Do your students work from home?

BRAD: Yes, but really only as an adjunct to being in class. These students are, as I said, just out of school. They enjoy the campus environment. They come here and get to know one another, go out together and all that. Also, being young, they haven't necessarily got the resources at home that they have access to here.

When they're all fired up with their web designs, it's hard work getting them to actually log off and go home!

FIONA: So they just use the web environment for their web designs?

BRAD: Oh good heavens, no. We have a journal, or rather, they have to design an online journal. I give each student an aspect of the theory to research and they put their finished product in the online journal. Of course, I get them to email me the draft first to make sure that they haven't left anything out, their facts are right and they've covered all the issues.

In fact, if there's a part of the design and development story that hasn't been covered, I add my own chapter to their journal. And boy, they are really critical of my work! But, you know, you have to let them have their say. I'm big enough and ugly enough to take it all anyway.

I love teaching these classes, you know. When I think about it, I'm not really a teacher at all. I'm more their mentor; I keep it happening. I learn so much from them, too, you know.

FIONA: Do you worry about plagiarism or cheating?

BRAD: No, I don't. Look around you. Sally, over there, is not very comfortable with HTML. Gary, who just loves to help people, is working with her now. She's learning from him and in the end, her web will be great. Is that cheating? I don't think so, it's just part of learning.

Adrian, he's a whiz with interactivity, but real subtle stuff, you know? As far as I know, he's barely written a single line of JavaScript but his webs are full of it. That's what web design is about, in part. You see something you really like in another web and you copy the code. Or you go to one of the shareware sites and download stuff. Is that plagiarism? I don't know. It's just real life.

And Dave, over there, wants to learn Flash. He's used the Macromedia tutorial but has just discovered that Pip has been programming in Flash for the past semester. He's cornered Pip and bribed her with the promise of comprehensive Illustrator instruction for her work. Dave now has more Flash functionality on his site than anyone else, including Pip. Still, the other students may well be critical of a completely Flashed out site.

You see, Samantha and Jon are working on their web layouts together. Their webs will be similar, but look at what they've learnt from each other.

FIONA: What about collaborative assessment?

BRAD: Almost everything they do here is collaborative. And, you know, when you're out there in the real world, that's how it happens. You share, you ask for help, you advise others. And I tell you what else you have to be able to do, criticise without giving offence or alienating your team mates. When the students pull apart each other's work, they learn how to be careful about how they say what they need to say.

FIONA: Do you set real tasks as assignments?

BRAD: We are really lucky here. We must be surrounded by a hundred businesses—shops of all kinds, accountancies, a TAB, an employment agency, a club, a modelling agency. They even say there's a brothel but I don't know where.

Each semester, I do the rounds of the businesses and find four likely candidates for a new website. Then, all my student teams do the work. They learn to plan, interview, write up design briefs, develop prototypes, negotiate with clients … The clients sometimes get scripts from me to ensure that each group of students gets challenged by some unexpected twist to deal with. But, you know, they produce some brilliant work. A few of the companies have taken the students work to the professional web designers they'd paid a fortune for and said, Amateurs can do better than you! … I'm not sure that's always a tactful approach, but, it's great that students get 'real life' tasks to work on.

FIONA: Do you offer fully online delivery options for the course?

BRAD: Yes, I do. The take-up is usually from older people, you know, people with families, jobs, responsibilities and the like. I still get them to work collaboratively, only it's all online. I reckon it's harder for them, you know, just judging by the emails and sometimes the despair as the term draws to a close and they've only finished half the work. They have their own journal to contribute to, as well.

You can prompt and give a schedule for them to follow, but the reality is that their work and home life takes precedence. It's harder, for sure. There's so much sharing in the classroom that you can't quite simulate with threaded discussions, chat sessions and online review of each other's work.

You have to provide as rich an environment as possible online. And of course, you give times to phone for those who really need to hear a voice once in a while. It takes time and lots of work to establish the relationships with the online students, but it is worthwhile.

FIONA: How do you judge your students?

BRAD: Look, when they leave here, they might all have the qualification but they're by no means equal. They will have met the criteria outlined in the competencies. I tell you what, the real measure is how much each student has learnt in the class and how they can use that in the workplace when they leave.

Bernie, over there, he was a complete novice. I really don't know who let him enrol. Knew nothing but he has probably learnt the most. Not technically perfect by any means, but, boy, does he have a natural intuition. He knows exactly what the client wants. He'll be a truly valuable member of a team in the future.

Hélène, she came here with programming skills and some networking knowledge. Yes, she produces technically brilliant work, can't fault her. But she has little patience with her clients. Of course, she'll also be an invaluable team member but for completely different reasons.

How can you use one set of criteria to judge your students? You've got to know them well, assess what they start with, then follow each student's progress and record it, and then see what they end up with. Thankfully, the competencies actually allow for variation, so it all works well here for me.

FIONA: Have you anything else you'd like to add?

BRAD: Yeah. Have fun in class and use tools that are appropriate to your subject matter. And never, ever stop learning!

FIONA: Thanks, Brad.

Scenario 6

The diary I kept while learning at a distance—a learner's perspective

Prue is a 35-year-old mother of two. She lives on a property 350 km away from the nearest town. The property runs beef cattle, various feedstock, and durum wheat. Prue and her husband would like to diversify and are thinking about tea tree, lemon-scented myrtle, Dorrigo pepper and buckwheat and soy beans. Prue has decided that they need to know more before they make any decisions. Prue's husband is currently investigating the buckwheat and soy bean opportunities. Prue has enrolled in an online horticulture course for the next semester.

This is her diary.

Week 1

Well, I've finally enrolled. It shouldn't be too hard, only three subjects; Native plant soil preparation and irrigation, Native plant care and pest control and Native plant harvesting. We have a satellite dish on the farm, so picking up the materials shouldn't be too hard. Just as a back-up, the college has sent out a copy of the course materials on CD. I'll still have to access the assessments online. The college says that I can try to take part in the chat sessions but the satellite connection might make the experience slow and frustrating. If I have problems, Bill, the facilitator, will send me a complete copy by email afterwards.

Bill has told me to make sure that I email once a week before Thursday afternoon to report my progress and to ask questions. He said that there were tasks to complete right from day 1. Many of the tasks are apparently just to keep me on track and to let me see that I'm learning as I go. There's a record of which tasks count as part of the final assessment and how I'll be judged.

Week 2

We have to keep a production diary online as part of the final assessment. I've been preparing the soil in the garden for planting. I've been using the diagnostic tests and mixing additives in formulas suggested in the resource for my chosen plants.

I can see that the production diary will be a really useful reference for us if we do go into production later next year.

Week 3

I've got a very small plot of land near the house that I can practise with—the soil is most suitable there and well prepared. We've bought 2 lemon-scented myrtles and 5 tea trees. It seems silly, such a small amount, but I need to try out what I'm learning. So far, I've had some spare time and have actually started week five of the course already. I've been sending emails to Bill to let him know where I'm up to.

I've been doing the online quizzes to check my own understanding. It's interesting. Sometimes you really think that you've got the idea, but then the quiz shows you you're quite wrong! The quiz is good though. Right or wrong, there is always a box that pops up explaining the right answer and directing you to new websites or new chunks of information that have just been posted. When we feel we're ready, we complete a short online assessment that goes straight to Bill. This is so he can watch how we go and provide help where we need it.

Bill has put a journal online that the whole group can contribute to. He's given us some little tasks to help us each prepare an online article. Plus, he has designed an 'Ask Bill' section where he

publishes some of our questions and explains the answer in detail. That's a great resource. Even when you don't have a question yourself, it's a good spot to get more information from. Last week, one of the students found a collection of hairy caterpillars on his lemon myrtle. Bill had the remedy. Today I found a similar collection of hairy caterpillars that I knew how to deal with straight away.

Week 6

I've just had a bit of a setback. My 4-year-old took ill and I've really had to spend my time nursing her back to health. Then my 6-year-old felt left out of it—he wasn't getting any attention so he decided to be particularly difficult for what seemed like forever.

Anyway, I'm glad I did that extra work when I could. I've just got to the reading for week 6.

Two weeks ago, Bill set up a listserv. I didn't know what that was, but it's like a community talk space where we email out and everyone in the class gets a copy. It's just made up of the community of our class. It's really good. It's an easy way for us to share our ideas and map out our progress. Bill set up a listserv because apparently, most of us would have problems with bandwidth if we tried to join a chat room.

We've all introduced ourselves to the group online. One of the students, Teng, has been growing Asian vegetables for the city markets for years. He now has 2 acres under riberries and native bush tomatoes. He's hoping to sell the fruits back to Asia through his contacts in Vietnam. Good on him! And Sharon and Jimmy have planted quandong and are hoping for similar export opportunities, to Japan.

Week 7

This is a tricky week. We've been studying some of the diseases and bug infestations that can worry the native plant industry. When you cultivate natives, they can get a bit stressed and tend to be more susceptible to things that wouldn't normally worry them. We have been given a couple of multiple-choice quizzes to do so that we can check our knowledge of diseases and infestations, remedies and treatments. When you have whole lists of bugs and remedies to pick from, you kind of get confused and forget what you learnt. I think I prefer quizzes where you write your answers from scratch!

The online journal is interesting. We'll get marks for our contributions. Each week, Bill gives us some suggested topics to explore. He suggests that we send a minimum of two articles each for publication throughout the semester. We send articles, stories, diagrams, plans, drawings and even photos to Bill and he puts them into pages in the online journal. We don't have to stick to the topics, though. If we write about an area of interest to us all, he'll publish it. There are some great stories there already and Bill has contributed a few himself. At the end of the course, he says that he will make us all a CD with the journal on it to keep.

Teng was a bit worried about his literary skills and his ability to write articles for a journal, English isn't his first language. Bill's explained that this course isn't about writing magazine articles. He says that if we're not comfortable with the articles, we can send the information in dot points, we can mail photos or diagrams and we can use graphs and charts. He'll prepare the articles so that the information is clear and phone or email us to check that we understand the facts. Teng has already sent Bill a copy of a newspaper article from Ho Chi Minh City about the benefits of tea tree oil with a rough translation which Bill has published!

Week 8

We've just been set our big assessment task. It's only half-way through the course but Bill says that it's a step-by-step collaborative task. On the listserv, he told us what the project was and said that we could each elect to complete a specific section, then send it round for comments, make any changes if necessary, then we pass it to the next person or group to complete the next section.

The task involves the planning and setting up of a native nursery. There is a plan of the site, with contours; an analysis of the soil; the typical rainfall and temperature patterns for the area. We are having a discussion on the listserv about what plants we should 'buy'. Apparently, as we proceed, Bill throws in all sorts of problems that we have to discuss and deal with.

Week 10

The online listserv, that's us, has elected Warrigal greens to grow in the wetter parts of the land, quandongs and finger limes up on the drier area. We have a large area dedicated to tea tree. Then there's a section for a stand of eucalyptus macrocarpus. They're for gum nuts for the cut-flower markets. It's not a viable mix, we know, but it gives us all the chance to contribute our knowledge one way or another.

Next week most of us will be too busy with harvest to really take part in the class. Bill has advised us to do what we can and that we are ahead with the study anyway. Sounds like he's had to deal with the harvest issue before and thank goodness he's flexible!

Week 13

Well, we're all exhausted but ready to proceed. Jack and Suellen have prepared the soil on the test acres and marked off on the map where each species will be planted. We've all had a good look. I thought it was fine but there has been discussion about the soil in one corner of the site. Some people thought it would be too rich. Eventually, we asked Bill to provide advice, as we'd become 'stuck'. Bill laid out all the factors that we should take into account and we realised that in a way, both parties were right.

The listserv is currently debating the work Marco and Brian have done on irrigation. It's certainly been an animated discussion. Bill has suggested that Brian and Marco have spent most of the budget. He wants them to think about other costs that will come later.

Week 14

I've discovered a soul mate not 150 km away, Martha. She and her husband diversified several years ago and are producing goat meat. We decided to complete our part of the assessment together. I think it'll be one of the pest invasion episodes!

Tamsin and Arthur are tackling a sooty mould on the warrigal greens and an unknown borer on the quandong at the moment. Naturally, there are several solutions to both problems. Tamsin and Arthur have to discuss why they chose their answer and what are the benefits and drawbacks of each decision are. Cost, of course, will also have to be taken into account.

I've been reading about the harvest. Too early here, but there are a heap of factors to plan before the actual harvest takes place. Finding distributors or processors, arranging transport, assessing the weather, planning labour. I'm sure this would all be sixth sense for my husband but I'm just glad there are short assignments throughout the course that I have to complete to help reinforce ideas. Bill's responding more and more on the 'Ask Bill' page. I guess that means I'm not alone in the 'slightly overwhelmed' stakes!

Week 15

Martha and I have to deal with possums devouring all the finger limes, bats in the quandongs and cockatoos in the macrocarpus! Great! And the listserv is not helping. Brian suggests the .22 for all native wildlife!

Meanwhile, I've been using the lemon myrtle leaves in all sorts of food, Thai stir-fries, curries, pumpkin soup and custards.

Week 16

The course is nearly over. I've been filling in my production diary for submission. I've had a few bugs on the leaves and in the soil which I have managed to deal with, I hope. I have even done all the work on harvest issues, not that my plants are anywhere near that stage. I know where the nearest tea tree distillers are and have found a distribution outlet for my lemon myrtle.

Actually, we all shared some of that information to help Milena, Austin and Teng prepare their part of the assignment, the pre-harvest preparation.

Week 17

Sharon and Jimmy have just competed the harvest part of the assignment. Now we all have just one more opportunity to comment and suggest changes. Marco thought that we should have chosen something other than Warrigal greens for planting, but he was joking, I think!

I've just completed the post-harvest plant care reading. My final short quiz results will be sent in soon and my diary will also go. Next week, we are going to try to send comments to the listserv together. Some of us are talking about doing the propagation and marketing course next semester.

Week 18

It's over! Well I've made online friends and enjoyed myself. Bill and his comments have kept us all going. The diary and the journal will really be useful if we go into production in the next year or so. And, of course, I couldn't have done this if it hadn't been online. And yes, we all got through the course!

Thanks Bill!

Scenario 7

Classroom strategies for assessment are transferable to online—A learner's perspective

Gilliansberg Institute is a registered training organisation undergoing change. The board has recently appointed two new board members who are keen to see the institute enter the twenty-first century. James Pellecanos has just been appointed the new chief executive officer. He is young and enthusiastic and anxious to make use of the online learning facilities the institute bought last year. He knows that there are some keen young people in the staff who would love to offer online options for clients. He also knows that the client base does not want the institute to abandon its face-to-face delivery altogether.

At a recent staff talk, James talked enthusiastically about the learning management system, Blackboard, that was available to teachers to learn and use as an adjunct to any online delivery

suggestions. He even hinted that pay rises were forthcoming for those who had a project they were prepared to develop for online delivery and assessment.

Later

Margo is 26 and has just finished an online masters degree. She has loads of ideas and wants to work out a plan to present to the chief executive officer. She believes that the course for paralegals (Certificate IV in Business [Legal Services]) could be adapted for online delivery. The take-up rate would be good and many of the print-based materials could be converted to portable document format for access online.

Dominic is in his early 50s. He's a fantastic teacher with both practical experience and a thirst for knowledge that means that he reads profusely and constantly provides a challenge for his students. He's also fed up.

'I've been giving this college my soul for the last five years. I feel like I'm already on the heap because I have no knowledge or interest in this internet and online stuff. I always believed that students would want face-to-face interaction, instant feedback and the fire of a good debate that can only happen in the classroom. And as for Blackboard, in my day a blackboard was for writing on with chalk. Maybe I should just resign now.'

Margo is shocked.

'You've always been my hero, my mentor. You have given me so much advice and solid information over the past two years that I simply can't let you say these things. Look, just because a project is online doesn't mean that it won't adhere to sound educational principles. You have so much to offer here. Honestly!'

'How? How can I help? I feel like I know nothing of this new order', Dominic rages.

'Okay', says Margo, 'I want you to help me with my project. Do you agree? And you'd better say yes! I will show you how Blackboard can work for you and how useful the internet is. I can set up an email account and introduce you to chat rooms. For heaven's sake, you will still be able interact with your students, provide advice, be caustic and throw provocative statements around. The only thing you can't do is stomp around the classroom acting like some eccentric public school headmaster from Tom Brown's Schooldays!'

'Enough! Okay, I'll help. And don't you dare accuse me of being stubborn!'

The first development session

Margo wants to offer some face-to-face interaction throughout the course but wants to use the online environment to enable her students to communicate online at all times. The course Margo is delivering is at Australian Qualifications Framework level 4. She is delivering four modules in the first part of the course. The chosen modules deal with skills, such as communicating information, judging what information can and cannot be released to specific people, finding and researching information, questioning police for details, consulting and briefing legal practitioners and preparing written briefings. Margo believes that the online medium will enhance the learning experience for her students and is keen to start planning.

Dominic joins Margo in her office to help with the course design.

'So, you want to set up some collaborative task on the computer? Why don't you just get the students to form groups that research together and share information through seminars?' asks Dominic.

‘Because, my students are mostly part-time learners with full-time jobs. They never seem to be able to research in teams at times they all favour. I want to make the task more manageable for them. By using the Blackboard tool, the students can research when they can, place their findings in a shared environment, make comments and changes they all can see and prepare the material together. All this at times and places that they choose. How good is that?’

‘Yes, but how do you know who’s contributing what? How can you identify the slacker in the group?’ asks the ever-sceptical Dominic.

‘Dominic, that’s always a bit of an issue, isn’t it? What do you do with your face-to-face students when they complete a joint assignment?’ retorts Margo.

‘Well, I get to know my students from the classroom, you can’t do that on a computer. And then I get them to provide a diary of their research, findings, conclusions and a quick run through of what they think they have learned—in point form, or with illustrations, diagrams, with letters from their workplace and all that’, replies Dominic smugly.

‘The term is ‘online’, you Luddite! But, you know, if your students are sending you information and contributing in online discussions, or threaded discussions, you do get to know what your students are capable of. And there’s no reason why they can’t complete an online portfolio that they submit at the end of the year. They can use their portfolios later as proof of their skills and capability when they go for interviews. They can even put written reports from their colleagues into their portfolios by getting a soft copy or just by scanning anything that’s handwritten’, explains Margo. ‘But I would like some help with the design of multiple-choice tests so that they can monitor what they are learning and focus on areas that need a bit of work. Will you help?’

‘Multiple-choice! What on earth do you want to use multiple choice for? You would never use multiple-choice in a face-to-face situation, would you? Your subject matter does not lend itself to multiple-choice at all. What are you going to ask? When you brief the legal practitioner should you a) be clear and concise b) be detailed and factual c) be well-prepared and accurate d) be all of the above?’ mocks Dominic.

‘Well, multiple-choice is effective online because learners can access it when they want and they can get instant feedback. Of course, it will take us quite some time to develop detailed responses to help steer them in the right direction when they’re wrong and to reinforce their learning when they’re right.’

‘Margo, you’re letting the tail wag the dog! You’re shamelessly using technology for technology’s sake. You know that multiple-choice is not a suitable assessment method for your course but you’re allowing yourself to be dazzled by the tools. Why don’t you think about what skills your learners need to develop and design some formative assessment strategies to complement those?’

‘As much as I hate to admit this, I think you’re probably right. See, you are still useful after all!’ Margo grins.

‘Thanks, I think!’

The second development session

The course is coming on. Margo is just concentrating on the original four modules which she has identified as most appropriate for the online environment.

The class will meet face to face once a fortnight to allow for viewing of trigger videos followed by discussions, visits by guest speakers, half an hour of face-to-face meeting between the team members and as a chance for Margo to catch up with the class in person to deal with any educational, technological or other issues that students have.

The online component of these modules has some structured discussions based on a range of topics that all students will have to contribute to. Margo has worked hard to define the assessment criteria for the online discussions and has developed a grid to enable students to see how they will be assessed. These marks will contribute to 20% of the overall mark; the grid closely links the expected performance within the online discussion to the performance criteria of the selected modules.

Teams will work on an identified set of issues that will require individual research and team collaboration and review skills to be developed in order to produce the final product. Each team will then display their product on Blackboard for the whole class to review and comment upon. As a supplementary exercise, each group will give a short face-to-face presentation as if briefing a legal practitioner.

What Margo would also like is a short online role play to allow the learners to step into the shoes of the legal practitioner, the police, the legal clerk, and the client. She asks Dominic for his help.

'I've been trying out the email account you opened for me and I've spent some time on the internet. There's a heap of junk out there, I must say, but those references to the online journals were really good, even if some of the articles are a bit technical for me.'

'Dominic, I'm impressed! What has got into you?' Margo laughs, 'You'll be offering all your course online next!'

'I wouldn't go that far, but, your course is coming on, Margo, isn't it? So, what's next?'

'I thought a role play or simulation would be really useful. You know, the students could get into the role of a critical person in their day-to-day interactions and play out some dramas of some sort. What do you think?' asks Margo.

'And why is online good for this?' queries Dominic.

'So that people can contribute when they feel they have the time, of course.'

'I have a role play, you know. In the face-to-face class, it lasts about three hours and you have to run three separate role-plays to incorporate all the students. Each role play has two observers who write up a critical report at the end. Then there is a group debriefing where all parties let go of their roles and the feelings and emotions they have generated whilst there. We can look at my role play as a starting point for the development of yours if you like', Dominic suggests.

'That sounds good. Some of the literature describing online role plays suggests that teams of students take on one role. I'm thinking that the students have already done a fair amount of teamwork and that they need a chance to contribute as individuals.'

'Good point.'

'Also, I think I'd like them to join a role play that reflects their own workplace. Do you suppose we could develop separate scenarios to fit the criminal, commercial, family and property law fields?' asks Margo.

'Hmm. I think that there might be a load of development needed to set up the interactions, roles, plot and all the bits and pieces of the story. But I think it would prove to be useful. We can also think of some extra roles for some of the areas, like a social worker or a …'

'Hey, that's a good idea. And of course the scenarios will be really specific. I guess we will need to script a series of things that need to happen in each case. They might take some work, though', says a bewildered Margo.

‘Margo, we can try out some of the role plays in a face-to-face class first, if you like. Let’s use my higher-level class to trial the role plays. They’re so full of anecdotes from their own workplaces that you’ll be able to build really rich role plays.’

‘But how will I be able to incorporate them in to my class?’ asks Margo.

‘Leave the role plays till the later part of the semester and that way we’ll have at least two ready to go. Look, I know you want to run with the online assessments and activities as soon as possible, but sometimes it’s okay to take a bit of extra time. This way, the product you deliver will be much better. And I’m sure the students wouldn’t mind if you had to run some of the course in class.’

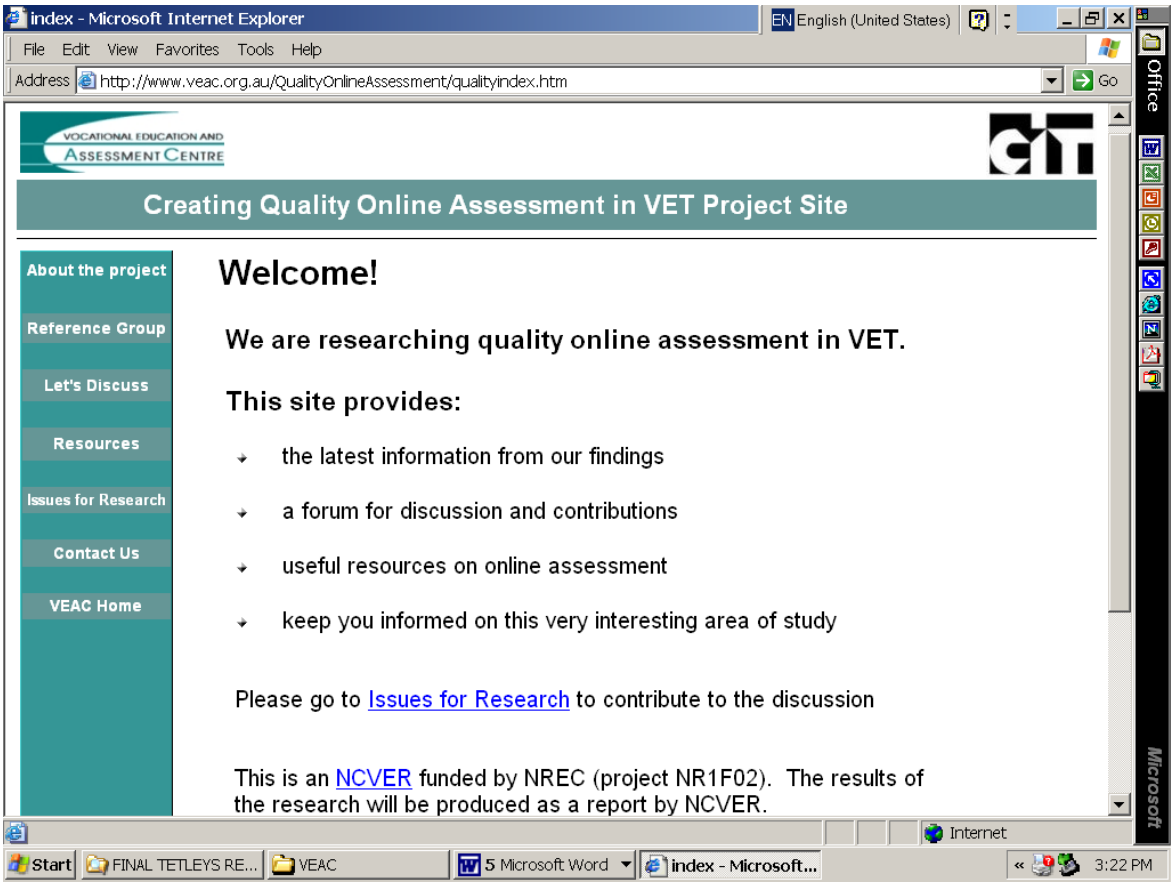
‘Thanks, Dominic. You are sensible, aren’t you?’

‘Well of course I am. I am imbued with the wisdom of Solomon and I’ve been teaching a lot longer than you, you know. Now, how can I develop some little online event to show the chief executive officer how with it I really am?’

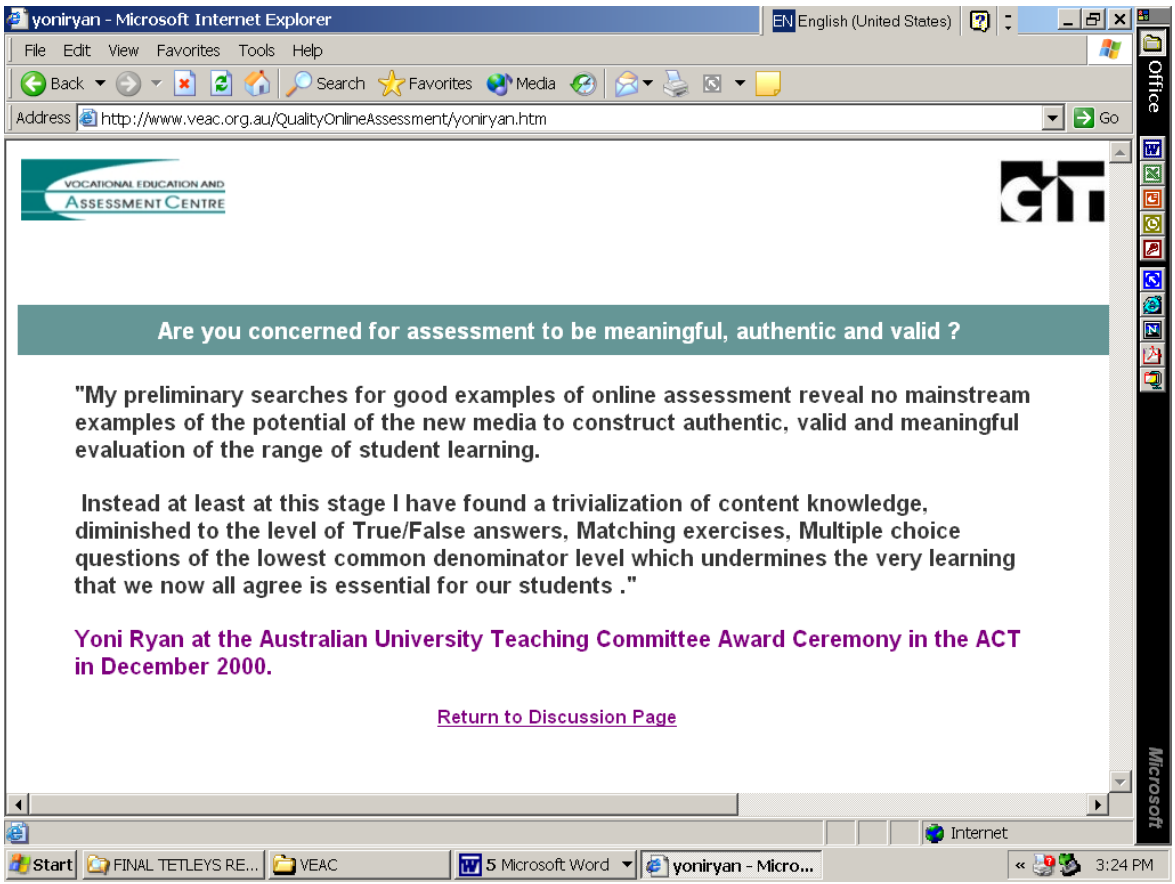
‘Dominic, I have some great plans for your course. Just have a look at this idea I have here …’

Appendix 4
Project website

Although the original project website has been dismantled, the content has been placed in the VEAC website on public view. The URL for the home page (illustrated below) is <http://www.veac.org.au/QualityOnlineAssessment/qualityindex.htm>.



Scrolling through the pages will reveal the membership of the reference group, the questions posed to some of the respondents and the initial controversial icebreaker statement delivered by Yoni Ryan. The statement appears below.



Although the web is still available to be viewed, any further information and responses to the online questions sent via the webmaster will no longer be acknowledged.

Appendix 5
Interview respondents

Barnett, Stewart	University of Sydney
Barry, Sarah	Qantm Australia CMC Pty Ltd
Batten, Jennifer	TAFE NSW
Beech, Bradley	Central Gippsland Institute of TAFE, Victoria
Bell, Guy Kemshal	TAFE NSW
Bennett, Randy E	Educational Testing Service, United States
Binnick, Rita	TAFE South Australia
Bishop, Rosemary	Interdependent Solutions, Sydney
Blecich, Carol-Anne	TAFE NSW
Bostock, Stephen	Keele University, United Kingdom
Boud, David	University of Technology Sydney
Butler, Lucia	South West Institute of TAFE, Victoria
Campbell, Nola	University of Waikato, New Zealand
Cashion, Joan	Swinburne University of Technology, Victoria
Christie, Michael	Chalmers University of Technology, Sweden
Clark, Terry	Learning Network Queensland
Crosby, Brett	TMP Worldwide Australia
Dalziel, James	Web MCQ and University of Sydney
Danson, Myles	Loughborough University, United Kingdom
Donan, Peter	University of Canberra, Australian Capital Territory
Evans, Val	TAFE NSW
Gear, Keith	NSW Fire Brigade
Grady, Jock	TAFE NSW
Hall, Gerald	Australian Catholic University
Hensley, Donna	TAFE NSW
Herrington, Tony	Edith Cowan University, Western Australia
Higgson, Carol	University of Bradford, United Kingdom
James, Richard	University of Melbourne, Victoria
Jones, Louise	TAFE NSW
Khabbaz, Dianna	TAFE NSW
Kibby, Marj	University of Newcastle, New South Wales
Lees, Penny	TAFE NSW
Love, Fiona	Australian Rail Training
Luca, Joe	Edith Cowan University Western Australia
Macdonald, Janet	Open University, United Kingdom
Maley, Moira	University of Western Australia
McCabe, Michael	University of Portsmouth, United Kingdom
McNamara, Dennis	Securities Institute, Sydney
McNicoll, Cathy	Canberra Institute of Technology, Australian Capital Territory
Murray, Josephine	Pelion Consulting Tasmania
Necland, Scott	International Hotel Management School, Sydney
Newton, Ian	TAFE NSW

Northcote, Maria	Edith Cowan University, Western Australia
O'Reilly, Meg	Southern Cross University, New South Wales
Parashar, Archana	Macquarie University, New South Wales
Peat, Mary	University of Sydney
Phillip, Robyn	Macquarie University, New South Wales
Postle, Glen	University of Southern Queensland, Queensland
Tyrell, Anthony	CentreLink Virtual College, Australian Capital Territory
Velan, Gary	University of New South Wales
Vincent, Andrew	Macquarie University, New South Wales
Way, Steve	TAFE NSW
Webb, Greg	TAFE NSW
Webb, Kate	TAFE NSW
Williams, Jeremy	Brisbane Graduate School of Business
Whittington, Dave	University of Glasgow, Scotland

The National Centre for Vocational Education Research is Australia's primary research and development organisation in the field of vocational education and training.

NCVER undertakes and manages research programs and monitors the performance of Australia's training system.

NCVER provides a range of information aimed at improving the quality of training at all levels.

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