

Exemplar 10

Course area: Extractive Industries Management

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This Exemplar illustrates how a variety of learning ingredients can be blended into a rich mix which draws heavily on industry links and expertise.

Over the last few years, we've been developing a Diploma for quarry managers, which has a variety of elements—including learning from web-based, interactive resources, from the industry, from equipment suppliers, and from staff, and learning and assessment at work. We've tried to combine all of these elements holistically.

An important feature of the course is its close links with industry. The program management committee includes representatives from a variety of companies, industry groups, the Mining ITAB and the Department of Mineral Resources. They provide us with advice on the ongoing running of the course, along with access to the expertise of the Institute of Quarrying.

The Institute is an important group for us. It has almost 2000 Australian members. We've got a very strong link with this group, and their secretariat are a useful conduit for getting advice and information from members.

First, some background. For many years, quarrying was regarded by many as the poor cousin of underground and open-cut mining. But there was a strong push from the industry to upgrade the skills and qualifications of quarrying managers. Legislation was introduced which means you now need a Diploma or equivalent to run a quarry. TAFE NSW—Illawarra Institute is now the major provider of Quarry training.

For learners wanting to do the Diploma, they and their companies tend to have a very high level of motivation. If you were to do the whole Diploma face-to-face in the traditional attendance pattern, it would take between 10 and 12 hrs of class-time per week over three years.

The students coming into the course are a mixed group. Some have been in the industry for years, others have come in as graduate trainees and are looking to train in quarry management. About half are graduate engineers, with the rest from a variety of mainly technical backgrounds. Quite a number would have liked to undertake training in the past, but were frustrated by the delivery options available:

'For the best part of 10 years, I have attempted to find a course that could provide me with the quarry manager qualification [but] the courses that I started all required me to attend their classrooms for weeks on end... My colleagues and I could not leave our quarry sites... due to duty of care obligations. It is not surprising that many of us did not get very far with out studies⁹.'

Most students choose to start with a one week, face-to-face orientation in which we go over things like how to be an independent, web-based learner. This orientation is not compulsory, but we strongly recommend that they do it. At the orientation, we help them with time management, and we start work on some of the competencies. They might be working online on a module, with information going backwards and forwards to a teacher a few hundred metres away. They practice the online work like this, and if they get into difficulty, the teacher can walk over and help them.

Another advantage of starting off with a face-to-face session is that it allows students to get to know each other. Often, in this industry, people have heard of each other but may not have actually met. So the orientation can be the starting point for warm friendships, which continue to grow via things like chat sessions.

After the orientation, they're on their way. When they enroll, a lot of what they are drawing on are not artificially created resources. Instead, we use hyperlinks on the course website to direct them through to current legislation and commentary. This is a critical aspect of the course. The legislation and technical information impacting on our industry is ever-changing, and we didn't want to spend time trying to update it. We've got copyright permission to go straight to the source. As legislation is updated, or as new commentary is made, our students get to see the current material.

We've tried hard to make the best use of available resources. A few years ago, New Zealand put a lot of effort into producing written training materials for the quarry industry. It was a very valuable resource, and they have allowed us to build that into the course.

We also provide some dedicated learning resources. Most of this material was developed as a TAFE NSW learningware product, drawing on the expertise of teachers and people from industry. There might be notes on how to implement continuous improvement, or photos of quarry sites which you can examine by 'virtual tour'. The task might be to examine the site and identify all the hazards. Learning resources like this can be accessed online, but we also supply it on a CD, to save students having to download it. A lot of them don't have broadband access, so downloads can be slow.

9 Extract from a letter from a past student of the program.

Now, let's talk about other parts of the course. Students liaise with staff by email but, apart from that, we have scheduled two-hour chat sessions over two nights. The timing (one starts at 6 pm, the other at 8 pm) is significant because our students come from different time-zones, from New Zealand across to Perth. The two different time slots allow for these differences.

Throughout the Diploma, we maintain an online help desk. All of the normal sorts of things that you would get if you turned up to a face-to-face course, such as advice, counselling, and other services, are available through the help desk. Access is all by email.

We also use tutors, who are in effect their part-time teachers. There are 19 subjects in the Diploma, and for each, we assign a teacher with expertise in the area. It means that when we are having a chat session, we will program it around a subject area, and the designated teacher will be actively involved in facilitating the chat. So it's like a face-to-face seminar on a topic, only run online.

We have also introduced the role of on-site mentor and assessor. The person in this role may be someone senior at the same quarry as the student, or someone local who is a member of the Institute of Quarrying. Often, the mentors or assessors we use are actually District Inspectors of Mines.

The core requirement of the course is to work through a comprehensive self-help checklist. This helps the student prepare portfolios of evidence for assessment. So in each module, there will be statement like: 'To complete this Unit, you will need to demonstrate competency X and, to do that, the type of evidence you will need to supply is Y'.

Let's take an example, and I'll explain how all this comes together. Suppose the competency the student is working on relates to risk assessment, and part of the evidence required is the 'design and implementation of a risk assessment policy for your quarry'. The Department of Mineral Resources has a parallel requirement. They want each mine to have its own risk assessment policy. And the one who signs this off is the Inspector, who may also be the student's mentor or assessor.

So you can see how well it is integrated. The students demonstrate competency, using the range of resources and hyperlinks available to them; the company gets its risk assessment policy, and the Department of Mines can sign off on the fact that quarries are looking after risk assessment.

Sometimes, when a few of the students are working on a problem, they come up with something that goes beyond their expertise. What they can do is send that back to us and, if it is tricky, we can send it on to the Institute of Quarrying Expertise, who will open it up for comment by members. It is as if the learner has access to 2000 teachers! A query like this might get 20 or 30 replies.

To me, 'blended learning' involves a mix of learning online and learning on-the-job through action projects, supported by their mentor.

Face-to-face learning is part of the mix as well. Not only do most students attend the initial orientation, but face-to-face learning may occur throughout the Diploma. Perhaps the student spends some time working with equipment suppliers, to learn how to manage that part of the business. Perhaps they attend an industry-run seminar, and that is part of the learning, too. Or the student may enroll in a face-to-face Frontline Management course, which is one of the competency areas in the Diploma.

But I want to emphasise that the course is extremely flexible. You can get through without any face-to-face, and the course is fully self-paced. We had one student who didn't come to the orientation, and who managed to complete all requirements in seven months! That is exceptional, but it shows what can be done. Right now, we've negotiating an agreement to offer the Diploma to a string of quarries in the United States. As far as we have been able to discover, there is no other online Diploma for quarry managers anywhere in the world.

Comments on our own learning...

My staff and I have obviously learnt a lot as we've set this up over the last few years. We've learnt technical skills, like managing chat sessions and designing websites. But just as important have been skills in managing the learning, the pedagogical aspects.

We've had a lot of help along the way. We've done *LearnScope* projects, we've done *ReFraming the Future* projects. In the process, we've become very close to the Institute of Quarrying, and to some of the major corporations.

A key lesson has been the shift from 'what do we want to teach' to 'where do we fit into the industry and to the requirements of individual companies'. The whole program has been a huge learning curve, and we're still learning as we go.

