



CHAPTER 7

DELIVERING THE PROGRAMME

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If access to technical and vocational education and training (TVET) is to increase, new ways of developing and delivering courses must be explored. TVET must be taken outside of the classroom and into the communities, the workplaces and the homes of the students. Traditional ways of thinking about TVET must be put aside and different ways of packaging and delivering knowledge and skills must be developed. This is particularly critical in meeting the demands of countries with depressed economies and countries where people are separated by water (as in island states), by terrain or by distance.

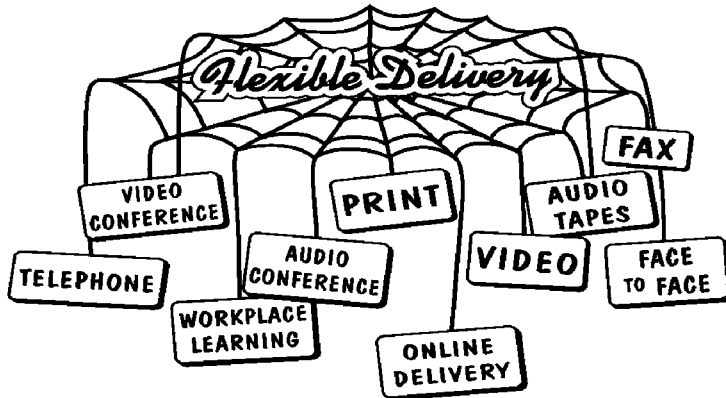
DIFFERENT APPROACHES

Different approaches to learning allow learners a greater say in what, where, how and when they study (see Figure 7.1). These flexible approaches are based on some form of open and distance learning (ODL) methodology which allows learners to study from home, work or a community facility. This off-campus approach is fully supported with materials and contact with a resource person, and may include the following components:

- *Self-paced learning packages*, which are interactive written materials enabling learners to work individually at their own pace. These packages are often supplemented with audio or videotapes and CD-ROMs. They may be used on or off campus.
- *Mixed-mode study*, which involves the above approach combined with workshops, tutorials and other structured activities.
- *Online delivery*, which provides computer-based learning materials via the Internet. This technology also allows the learner to interact with other students and staff through the use of e-mail and computer chat sessions.
- *Videoconferencing*, which allows learners to attend a convenient and suitably equipped location and participate in a class at another location. This reduces the time and resources that the learner may need to commit in travelling to classes.
- *Audioconferencing*, which uses the telephone as the basis for communicating with learning. This is usually used in conjunction with self-paced materials.

By repackaging knowledge and skills, using print-based learning materials supported by audio, video and CD-ROM or by on-line delivery, we move outside of the traditional mode of delivery, which has severely constrained access to TVET for a number of years.

Figure 7.1: Flexible delivery options



ADOPTION OF TECHNOLOGY

Those who develop trade-based programmes face the dilemma of finding efficient ways of teaching their learners. Teaching practical skills is an essential component in many of the traditional trade areas, and it has generally occurred by demonstrating these skills to the learners by an experienced lecturer in a workshop setting. New approaches are slowly emerging.

Online learning

Embracing information and communication technology (ICT) provides yet another model for learning. Online learning is being promoted in almost every educational system in the western world. By utilising the Internet, students can study anywhere, anytime provided they can log on to a computer that is connected to the World Wide Web. Within the educational sector this phenomenon is attracting huge attention, and millions of dollars are being spent developing suitable resources. There are, of course, some real benefits and major considerations to think about before adopting this approach.

The cost and reliability of the infrastructure are critical factors. Computers simply become consumables within the budget needing to be replaced every 18 months to two years. An unreliable service is very frustrating for learners and can result in many of them leaving the programme discontented. Developing specific online material is extremely costly and the staff development is very time intensive. The rate of development in this field is massive with new supporting software, systems and associated skills turning over in increasingly rapid lifecycles.

Research now indicates that online learning may not be quite as big as first thought, recognising that it is not always the most suitable approach to learning and that a blended approach may be more realistic. E-learning has its place within the range of options available. Its limitations include difficulties with streaming audio and video; with less than optimum infrastructure and slower computers, content looks very much like text on the screen. It has been documented that learners read 25% slower from the screen than from print-based materials, so text on screen is a poor substitute. Additionally it can be very expensive for learners if they are required to print materials from within their package or connect to the Internet through an Internet service provider (ISP) sometimes at very high payment rates.

Certificate in Information Technology at the Noarlunga Campus of the Onkaparinga Institute (TAFE), South Australia

The Certificate in Information Technology was an obvious programme to develop in an online environment, with many learners having all the necessary computer skills to be able to quickly and easily adapt to the new methodology. The course notes were loaded into the online platform and the lecturer used the e-mail facility to make regular contact with her learners. Additionally she promoted the chat facility for discussions with the learners at regular times, and she used the bulletin board to inform students of deadlines, news and contact details.

The online class was at first classroom based to ensure that all learners were familiar with the features and functions of the online environment. Very soon, those who felt comfortable within this setting participated from a distance — some from home, some from work and a few, who travelled extensively, from their motel rooms. A few learners who were sick and another who had a sick child were grateful for the opportunity to study from their homes. The lecturer also developed some freedom and was able to respond to learners from her classroom, her desk and on occasion from her home. The flexibility was much appreciated by all.

Using CD-ROM technology

Another pilot programme has had extremely good results using interactive CD-ROMs. (See the case study below from the Onkaparinga Institute of Technical and Further Education.) This approach produced the following benefits:

- **Benefits to the employer**
 - Decreased time taken to complete the units of up to 50% over traditional methodology
 - Decreased time the learner is away from the business
 - Greater flexibility in the times when apprentices may attend for practical skills training
- **Benefits to the learners**
 - Learners work through the learning materials at their own pace
 - Increased learning effectiveness
 - An increase of 20% in the successful completion rate
 - Learners who are sick or who miss a section can easily catch up using the learning materials at home or work
 - Learners can repeat a section many times if they find a concept or practice difficult to grasp
 - More learners can access the tutorial materials

Training for transport engineering in South Australia

Onkaparinga Institute of TAFE in South Australia provides training for Transport Engineering — Heavy Vehicles apprentices for the entire state. The apprentices attend workshop and classroom-based training full time for two-week blocks four times throughout the year. Many of the apprentices travel over 500 kilometres to attend their training.

In 1997 the staff commenced developing interactive CD-ROMs to make good use of the advances in educational technology and multimedia. They integrated the practical and theory components of the curriculum and provided built-in tutorial materials with 47 units of study now developed for modules in the Certificate 3 in Automotive Heavy Vehicles for the three strands:

- Earthmoving and Industrial Mechanic
- Agricultural Mechanic
- Road Transport Mechanic

The learning materials integrate text, audio, graphics, video, animations and learning activities. If connected to the Internet, the students can access the Heavy Vehicles Web site, e-mail their lecturer directly and link to other resources available on the World Wide Web. Resources have been developed for a target audience who prefers not to read, but relates well to diagrams, photographs and video. To this end, the educational design uses minimum text and clear step-by-step procedures with graphics and animation.

The staff has faced the many challenges of implementing the materials to increase flexibility and productivity. The team commenced their pilot with just six computers. To minimise the outlay on technology, students work in pairs. Students benefit by sharing the problem-solving and enjoying the social interaction within the learning environment.

Computer literacy was identified as an issue for nearly half the students in the initial programme. However, the user-friendly interface design was welcomed by the students, and any nervousness about the computers was quickly and easily overcome. Concerns that the computers themselves would be ruined in the workshop environment have also proved to be unfounded.

Practices and procedures at the institute have had to adapt to the new approach in many ways. Students are now being called up in a much more flexible way to allow for the varying time taken to complete the modules instead of coming strictly in two-week periods on block release.

These learning materials are being used across the network and on stand-alone machines in the workshop with some modules now being used for training in industry settings. The computers are situated at the end of the workbench and simply direct the students through their activities.

- **Benefits to the training provider**

- An increase of 20% in the results achieved
- Lecturers are freed up to spend more time with students who need additional help
- Less equipment is required (Given the varying speed of learners and increased flexibility as the learning isn't teacher driven, several units will be running concurrently.)

Flexible learning — anywhere, any place, any time

There are many areas of training within the scope of TVET that can be offered anywhere, any place, any time. Courses can be developed to meet the particular needs of the target group of students and then delivered to those students in a way that meets their cultural needs, at a time and place that suits the demands of their lifestyles. Often ways can be found to overcome remoteness, low levels of literacy and lack of access to traditional educational facilities. This requires a creative approach, an assessment of the available resources and an ability to harness these resources.

The following case study on small enterprise training is an example in which there was an identified need to develop better business skills. The barriers were remoteness, low levels of literacy, no electricity and no educational infrastructure. The resources were some creative people who were prepared to give some time and energy to this matter, supportive non-governmental organisations (NGOs) and a highly motivated learner group. In addition, the learners had to manage the constraints of looking after their families as well as tending to small enterprises in order to access learning.

Small enterprise training for rural women

A project was mounted through the Bangladesh Open University to improve the entrepreneurial and business skills of rural women. It was developed in such a way that people with no literacy skills were not disadvantaged.

The development team settled on the use of a tutor-led community learning group. Materials were developed which were visual or used audio and videotapes. A tutor guide was also produced. Female leaders were identified from communities and were trained in the use of the materials. The leaders then worked with groups of up to 20 women in their communities, leading them through the modules in the course.

The tutors negotiated with the women to determine where and when the meetings would be held. To attract women into the course, it had to be delivered at a place that was not too far from their homes, and at a time that allowed them to carry out their normal activities. Most groups assembled on grass mats spread on the ground in front of the hut of one of the participants. Most tutors held sessions twice a week in the mid-afternoon.

At the conclusion of the course, all women who had participated in the full course were awarded a Certificate of Participation, which provided documentation that could be presented to Grammeen Bank and other NGOs to access micro-economic loans to establish small enterprises.

Access through learning centres

The development of learning centres is important to increase access to TVET. A community can benefit by supporting a joint educational facility that supports a range of learning outcomes. This may result in a primary and secondary school, TVET Institute and university combining resources with a local government body to jointly fund a local facility for extended hours of use. In some examples local industries also access the technological infrastructure on a fee-for-service basis to support their own enterprise or small business. This has been particularly successful in close-knit remote rural communities. A co-ordinator facilitates the learning across all sectors and oversees the maintenance and upgrades as necessary.

The use of telecentres as learning centres which use appropriate technology to increase access to education is well described in the COL publication *Telecentres: Case studies and key issues* (Commonwealth of Learning, 2001). The case study below on the Pinnaroo Learning Centre is also helpful.

Learning in Pinnaroo

The Pinnaroo Learning Centre is located in the South Australia, approximately three-and-a-half hours' drive from the nearest city. The population in the region is very sparse with only 0.3 people per square kilometre. A joint facility has been developed on the school grounds and is managed by a regional co-ordinator who is funded by both the local council and the TVET institute. The adult learners access the existing school facilities by negotiation, and the videoconferencing facility and computer suite provided by the Onkaparinga Institute of TAFE are accessed by the school students

when not being used by adult learners.

A joint submission for funding from the Australian government enables a telecentre to co-exist as a network hub for access to the Internet. Local residents make use of the facility; for example a local nurse is completing her university studies at the centre. A number of examinations are invigilated at the centre on behalf of universities whose part-time distance education students capitalise on the facility. The facility is also a very valuable resource for the community; a number of small businesses access the technology to support their enterprises.

Workplace training

Another model gaining wide acceptance is that of workplace training, where training is modelled around existing work activities and related problems. This may involve complex activities and learning a wide range of knowledge and practical skills that relate to the activity, but not frequently associated in a single module of study. Again this requires partnerships within industry or commercial businesses. It may be supported by workplace trainers and assessors or managed by supervisors with customised resources developed by educational staff. This approach is extremely valuable for shift workers who have traditionally been denied training opportunities.

- **Benefits to the employer**

- Staff do not have to leave the workplace to learn, reducing travel costs and inconvenience
- Staff undertake the study at times convenient to the business
- Training is easily customised to suit the needs of the particular company

- **Benefits to the learners**

- A culture of lifelong learning is established within the industry
- Learners use the industry-standard equipment and specialty equipment required in their workplace
- Learners are supported by work colleagues and an educational expert
- Lecturer may be only a phone call away and checks in regularly
- Excellent learning materials are available

- **Benefits to the training organisation**

- Reduced infrastructure required
- Reduced direct input from the teacher
- Partnerships with industry enable access to all necessary equipment for video development without capital outlay
- Greater access to learners as geography is no longer a barrier
- Processes for managing learners and learning are streamlined
- Material costs and maintenance budgets are diminished

Skilled training in the leather industry

The Government of India identified the need to upgrade skills in tannery workers to propel the Indian leather industry into the 21st century. The formal education system was unable to meet this need for several reasons: the target group was in the workforce, the numbers to be trained were very large (1.4 million), the areas to be trained were not covered by formal systems, learners were distributed geographically through various tanneries in the country, each tannery had needs specific to local requirements, educational background of learners varied drastically from graduate to illiterate and tanneries found it difficult to spare workers for training.

The Indira Gandhi National Open University (IGNOU) developed a

course which was competency- and workplace-based and which used ODL methodologies. Strong partnerships were established between the experts in open learning and materials development and experts in the leather industry to implement the programme. In order to cater for the range of varied educational backgrounds including range of languages, the entire course was produced in both print and on audiotape.

The delivery system provided support through work-based demonstration and training at the worker's tannery, supplementary support through study centres located either in the tannery and general guidance and assistance through partnering institutes located in the community.

Work experience

Another approach to learning practical skills is a work experience programme. Again this relies on partnerships with industry or enterprises, but it allows individuals to assess their potential to meet the requirements of a particular job or role. Work experience programmes are used extensively in senior secondary or general vocational courses to assist learners to decide on a stream for their vocation. It allows them to work, for no monetary benefits for an agreed time, usually one week, to gain a fuller understanding of the range of skills and personal attributes required for the position. During this time some training occurs, covering basic practical skills. This is a more general approach and rarely links to formal skill assessment, but it does generate skills that may then be recognised within a future training programme.

CONCLUSION

Mixed-mode or a blended approach to learning is gaining wide acceptance within TVET. The trend to integrate differing approaches to suit the needs of the learners and increase their access to TVET is critical. It is important that this learner-centred culture is established within the TVET sector. Flexible approaches to delivering learning must be an integral part of the educational infrastructure, not an optional extra. Not only does this approach require different strategies for implementation and the deployment of significantly different policies and practices across entire systems and within TVET organisations, it requires different relationships with the learners.

Consideration of the availability of learning materials, existing or accessible infrastructure and trained human resources to support the learning are all vital in re-engineering approaches to educational delivery. Alongside this is the very real need to ensure TVET staff are aware of the changing approach and to support the implementation of new strategies with suitable professional development.