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ABSTRACT

The purpose of this report, based on interviews and examination of relevant reports and papers, is to provide an illuminative picture of technical and further education (TAFE)/industry interaction in Australia. Chapter 1 sets forth a typology of interaction. Chapter 2 examines perspectives on the nature of TAFE/industry collaboration. Three very different views of the relationship are summarized--views that were evident in interviews with TAFE administrators, TAFE college staff, and people from industry. Chapter 3 examines seven basic issues and their implications for interaction between TAFE and industry: ignorance of what TAFE does, credibility of TAFE awards, staff attitudes, what constitutes an industry, identification of industry needs, competition, and state versus local needs. Chapter 4 studies actual instances of liaison between TAFE and industry in the context of the typology set out in Chapter 1. Chapter 5 looks at two possible directions for future development--the development of industry skills centers and a training levy on industries. The report concludes with a brief chapter reviewing some key ways in which increased industry participation in training might be effected. An appendix contains a report of a preliminary study for the project on the ways and means of promoting shared facilities between TAFE and industry in Western Australia. (YLB)

THE TECHNICAL AND FURTHER EDUCATION SYSTEM AND INDUSTRY: JOINT USE OF FACILITIES

A Report Prepared for the
TAFE National Centre for Research and Development Ltd

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CHAPTER 1: INTRODUCTION

Background

This report is one contribution to a TAFE National Centre for Research and Development project entitled 'TAFE industry partnership: towards more effective relationships in course development and implementation'. The larger project is an in-house activity of the TAFE National Centre, supported with additional funding from the Victorian TAFE Board.

The impetus for conducting this particular study on the sharing of facilities between TAFE and industry had its origins in a preliminary proposal on this topic from WA TAFE (Gallagher, 1987). A copy of this WA report appears in the Appendix (p. 63).

While the research in Western Australia drew a number of conclusions, the author felt that similar work should be undertaken in other states, especially in NSW and Victoria, where a rather different picture might emerge. This principal recommendation from the WA study was supported by the Victorian TAFE Board. As a result, the present study was set up as a joint project between WA and Victoria and the TAFE National Centre for Research and Development, which accepted responsibility for the project management.

A steering group was established, with representatives from the three interested parties, comprising Mr John Braddy, Victorian TAFE Board, Dr W C Hall, TAFE National Centre, and Mr Charles Henderson, WA Department of TAFE. It was agreed that the study would seek to 'collect information on present TAFE/industry liaison' as well as providing 'an evaluation of the effectiveness of present arrangements'. Contact was made through TAFE National Centre liaison officers in the TAFE departments of New South Wales, Queensland and Victoria to provide access to TAFE staff and colleges, and in the case of the first two states, arrangements were also made for some data to be collected by central office staff to assist the (Melbourne based) researcher.

A preliminary approach to the study was developed at an initial meeting of the Advisory Group on 8 September 1987. A seminar on the project was held at the TAFE National Centre on 26 November 1987, prior to the second meeting of the Steering group.

Methodology

This report is based on interviews, and an examination of relevant reports and papers. It does not claim to be comprehensive - its intention is to provide an illuminative picture of TAFE/industry interaction, rather than a definitive one.

A total of 52 persons were interviewed, and several others assisted, together with the steering committee and TAFE National Centre staff, (a list is provided at the end of this report). Of those interviewed, 36 were in the TAFE system, either working in central offices or in colleges, and 16 in industry (including 2 in government departments working with industry on training issues). The great majority of interviews took place in Victoria, where visits were paid to 8 metropolitan training centres, and 4 outside Melbourne. In NSW, interviews were held with TAFE staff working on industry liaison issues, and in Queensland, interviews were held with TAFE staff, while visits were made to 3 training centres and 2 companies working with TAFE.

A number of reports and papers regarding TAFE/industry collaboration were reviewed: the majority of these were not published, including several related to the development of skills centres. A list of papers referred to in this report is appended.

As with any study of this kind, it is most important to acknowledge assistance. In this regard I am extremely grateful to those who took part in the study; to do so they had to set aside valuable time, and in many cases had done so at least once before in the past few months. It appears research on the relationship between TAFE and industry is in danger of becoming as major an enterprise as interaction between the two bodies themselves.

I am also indebted to the steering committee members - Dr W C Hall, Director of the TAFE National Centre for Research and Development, Mr John Braddy, Acting Regional Director for the TAFE Northern Metropolitan Region of Victoria, and Mr Charles

Henderson, Head of Policy and Planning in the WA Department of TAFE. All gave considerable assistance in both the development of the study, and its execution. Finally, I would like to express my appreciation to one further group, comprising staff from the TAFE National Centre, who commented on ideas expressed in a seminar on the project, as did the author of the WA study, Dr A Gallagher, of the Commonwealth Department of Employment, Training and Education in Canberra.

While the author has welcomed and made use of comments made on the drafts of this report, especially from members of the steering group, responsibility for its contents and conclusions remain his.

A typology of interaction

There are a necessary large number of ways in which TAFE and industry might interact. However, in this study the terms of reference limit the consideration to 'facilities', which were defined as comprising equipment, physical facilities, and people.

The approach adopted at the beginning of this study was to develop a typology of possible forms of interaction that might be found, and then to compare the typology with practice.

In developing the typology, it became immediately clear that the options for sharing facilities could be limited in terms of two critical parameters - who owns the facility, and who can make use of the facility. Obviously, facilities controlled and used exclusively by TAFE and those controlled and used exclusively by industry represent two extremes wherein no interaction exists: all other cases therefore fall between these two extremes.

It was also evident, that while equipment and other physical facilities (libraries, training rooms, etc) are available in similar ways, interaction in relation to staff is somewhat more circumscribed. Thus the typology is in two parts, distinguishing between staff and physical facilities (including equipment):

a) In relation to people

i. staff may be employed by TAFE, and made available to industry by being:

- hired as consultants;

- employed by industry for 'refresher' purposes;
- employed by industry on a secondment; or
- leave-without-pay basis.

ii. Company staff may be made available to TAFE by being:

- hired as trainers;
- brought in to consult on the development of courses; or
- brought in to work in TAFE on an exchange or transfer basis.

b) In relation to physical facilities (including equipment)

i. the facilities are wholly owned by industry and made available to TAFE by being:

- leased out of hours;
- 'donated' out of hours;
- leased at a realistic or 'market' cost;
- given to TAFE for a limited period, (as with broken equipment loaned for 'real' work to be undertaken in repairing it);
- made accessible for observation;
- made available for training purposes, but where the training is wholly by company staff;
- made available for training purposes, but where the training is wholly by TAFE staff; or
- sold to TAFE.

ii. the facilities are wholly owned by TAFE and made available to industry by being:

- leased out of hours;
- 'donated' out of hours;

- leased at a realistic or 'market' cost;
- made accessible for observation;
- made available for training purposes, but where the training is wholly by company staff; or
- made available for training purposes, but where the training is wholly by TAFE staff.

iii. the facilities are jointly owned by TAFE and industry, particularly through such mechanisms as the establishment of:

- skills training centres; or
- facilitator agencies.

where a variety of staffing methods again are possible.

A second element of TAFE/industry interaction is the process by which it develops, and an additional element of the research was to determine whether the interaction process was largely initiated by:

- TAFE;
- industry;
- an Industrial Training Council;
- a government department or agency;
- a community group or organisation; or
- TAFE/industry barter.

The 'typology' approach is a logical one, and certainly one that makes administrative sense (a point further explored in the next chapter). However, logical though it may be, this report is concerned with practical solutions to the need to increase TAFE/industry interaction. Thus, while all possible alternatives set out in the typology were considered, the major focus was on those which appeared to be the most relevant or likely to be effective.

Three criteria were used to assess likely relevance and effectiveness:

- cost (including implications for corporate profit, amortisation, etc);
- complexity (which included recognising the possibility of award restrictions, compensation and liability problems, etc); and
- long-term viability (and thus the degree to which an option is likely to be sustainable into the future, and remain responsive to changing needs).

In relation to cost, there are two issues that are of particular importance.

First, industry is unlikely, even in the most benign economic climate, to be interested in options that could have a negative impact on their profitability. Furthermore, it is unlikely to be enthusiastic about proposals that require the investment of resources without some reasonable return, or without obtaining some kind of taxation offset or other benefit. This concern is increased when joint use of facilities might raise issues to do with amortisation, compensation for loss of operational time, etc.

A second, and quite different element of cost, relates to government policy. It is quite clear the present Commonwealth Government expects companies to shoulder a much larger share of the training burden. Options that are based on the government meeting the present, or an increased financial burden are no longer as relevant as they might have been.

The second criterion mentioned, that of complexity, is crucial to the effectiveness of options proposed. Those that are likely to require the resolution of such issues as union award conditions, or which raise matters related to accident compensation and liability are less attractive than those that do not - and in some industries these are clearly significant factors.

Finally, a third factor to be considered was the virtue of addressing those options likely to be of continuing benefit and responsive to changing needs rather than assessing ad hoc and

on-off transactions. The donation of surplus equipment is, for example, essentially a serendipitous event, and the equipment thus acquired is almost certainly relevant to obsolete, rather than developing or threshold technologies.

Given these parameters, some of the options set out in the typology above are less attractive than others. Less relevant options appeared to include:

i) sale of equipment by industry to TAFE, or leasing of facilities at market rates - where cost is a significant factor;

ii) options where TAFE facilities are made available to industry - which, while desirable on various grounds are unlikely to enhance access to newer technologies, etc (although, in view of the potential income to be derived from this, attention was paid to the extent to which this happens); and

iii) joint purchase of equipment or facilities to be used for non-training purposes as well as for training, where issues of amortisation, compensation, etc are significant.

Rather than addressing all of the options above I have chosen in this report to highlight data collected on the following elements of the typology:

a) industry owned equipment leased out-of-hours

b) industry owned equipment made available free out-of-hours

c) industry owned equipment loaned on a short-term basis for 'real' work to be carried out

d) industry facilities used for teaching purposes with company staff as trainers

e) joint facilities, especially skills training centres and facilitator agencies

f) industry staff working in TAFE colleges on a paid or 'loan' basis

However, in some cases other initiatives have been examined, particularly where they appear to have been relevant and effective, and might suggest pointers for the future.

In each case the same approach was adopted - consideration was given to those factors that seem to have enhanced the feasibility and value of the initiative, and those that appeared to have reduced its effectiveness.

Structure of the report

As noted above, a report of this kind can be nothing more than illuminative. A conclusive and definitive study of interaction between TAFE and industry with reference to facilities would require resources far larger than those available for this study. However, interviews with people in TAFE and industry together with an examination of reports and documents have made it clear that a number of issues are central to an understanding of current developments.

Firstly, as examined in the next chapter, perspectives on the nature of TAFE/industry collaboration differ. As the chapter summarises, there are three very different views of the relationship - views that were evident in interviews with TAFE administrators, with TAFE college staff, and with people from industry.

From these differing perspectives, it is apparent that the nature of TAFE/industry interaction is itself a function of a number of underlying attitudes and factors. An examination of these critical factors is the concern of Chapter 3.

The next chapter contains a review of the various ways in which interaction actually takes place, represented in the terms in terms of the typology developed earlier. This is followed by Chapter 5, in which some of the points relevant to two issues currently important - the development of industry skills centres, and the notion of a training levy - are examined.

Finally, the report concludes with a brief chapter reviewing some of the key ways in which increased industry participation in training might be effected.

CHAPTER 2: PERSPECTIVES

Overview

In recent months there have been a number of reports issued on the future development of post-school education in Australia. Among others, one major theme has been the demand for greater commitment from industry to training, and the need for tertiary institutions to be more responsive to industry requirements, (see, for example, Skills for Australia, circulated by J S Dawkins and A C Holding, 1987, page 70). The concerns expressed about the desirability for greater industry involvement suggest that little such interaction takes place at present. To the extent that such a view exists, it is mistaken. However, the existence of considerable TAFE/industry interface at present would seem to suggest that this view is mistakenly held.

Much of the interaction is advisory. Industry representatives, both management and union, sit on TAFE committees and boards at every level, from the TAFE Board (recently replaced by the State Training Board) in Victoria and its NSW equivalent, the Council of TAFE, through TAFE College Councils, down to Course and School Advisory Committees and Course Review Panels. At the same time, TAFE personnel are represented in bodies such as Training Commissions, Industry Training Committees and training advisory panels of professional bodies. The network of advice and assistance is significant, although by no means as extensive as it might be.

TAFE and industry also share personnel. Many TAFE teachers were previously employed in industry, and in the case of part-time teachers many remain so. TAFE provides consultancy and training services for individual companies, and industry staff help in developing new programs or teaching the use of new equipment.

Finally, TAFE and industry co-operate in relation to equipment and physical facilities. Many companies donate equipment to colleges, as well as raw materials, while others are able to provide access to equipment out of hours, or even during work

hours under supervision. Opportunities also exist for 'real work', whereby students undertake tasks for an enterprise which result in repairs being made, or products completed, and are part of the everyday business of the company concerned. TAFE colleges are able to make their equipment available to industry, usually on a fee basis, and this may include 'real work' tasks. Both make use of seminar rooms, and other physical facilities at each other's sites.

There is no doubt that TAFE/industry liaison is a reality. What is at issue however is:

- the extent of such liaison;
- the opportunities that exist for enhancing and making such liaison more effective; and
- the views industry and TAFE hold about present liaison, and the issues that they believe effectively influence its extent.

This chapter and the next are concerned with the last of these three points; the following two chapters are concerned with the first two.

The central office perspective

In examining TAFE interaction with industry, the viewpoint of TAFE central office staff can best be described as defensive, acquisitive and administratively rational.

Central office staff are concerned to demonstrate that TAFE is doing a good job, and therefore that liaison takes place. A principal issue in this regard relates to industry involvement in the formal structures of TAFE. Reference is made to industry membership of key bodies, as noted earlier, especially the peak advisory body (eg the NSW Council of TAFE), and in participation in the course development structure - school advisory committees in NSW, and course advisory committees in Queensland and Victoria.

At the same time, central office staff are anxious to acquire resources from industry, especially in relation to equipment and materials (and to a lesser extent direct financial support - although this can be made a more attractive option by seeking funds for student prizes and awards, or for staff scholarships or study programs). Of particular concern is access to newer

equipment, especially that related to so-called 'high technology'. However, it appears - ironically - that expensive high technology equipment was sometimes made more readily available to TAFE colleges by industry than cheaper and less glamorous facilities. Thus, funding for the establishment of such facilities as a CAD-CAM centre (computer-aided design, computer-aided manufacture) which is perceived as fitting economic development priorities, was more readily available than that required to purchase equipment for areas such as hairdressing or catering. New industry 'glamour' has its implications for Treasury as well.

However, the most important element of the central office perspective is that it is founded on administrative rationality - these staff were most comfortable with the typology set out in Chapter 1, as a logical and useful framework within which to examine the issue of TAFE/industry interaction. They had a perspective that was system wide, and which saw implications for developments in one area for others. This point is taken up in the last chapter in looking at the 'levy' concept.

The view from the colleges

At the outset of the research project, I visited colleges with the expectation of applying the typology of facilities interaction model (as outlined earlier) in order to organize questions and collate data.

However, it was rapidly made clear that colleges saw the matter of interaction between TAFE and industry from a quite different perspective - one best described, perhaps, as a 'network' view. College staff reported on interaction with industry in terms of people, and who knew whom. Matters to do with membership of Councils and committees were at the fore, but not in terms of a system model, but rather as in terms of specific individuals. As Gallagher (1987) noted in his study of interaction in WA, in looking at 'bartering' between colleges and industry, this is very much a result of the "initiatives of individual trades instructors or heads of schools".

Thus from a college point of view, interaction with industry, and successful long term links, are very much a function of individuals and their capacity to maintain goodwill and an effective network. Examples of the key role of networks played were evidenced in every college I visited, and ranged from agricultural staff at Loddon Campaspe TAFE College liaising with

local farmers, the carefully developed network established with several branches of the building and construction industry at Holmesglen College of TAFE, through to the very important links developed with industry by heads of skills centres, such as the Plastics Skills Centre at South Brisbane TAFE College. For the college, liaison with industry represents the staff's capacity to network, and success is a function of the entrepreneurial skills on key individuals.

Not surprisingly, the emphasis on the personal connection between college and industry resulted in a valuable system of "quid pro quos" being established - the "bartering" noted by Gallagher. Again, in every college I visited, attention was paid to the various deals that had been effected between colleges and industry, especially so in NSW and Queensland where colleges do not (yet) have the freedom to set up consulting services or companies as a source of additional revenue. Thus a vehicle manufacturer might use college premises to demonstrate a new piece of equipment, and in return would donate the equipment to the college.

Surprisingly, access to equipment was not a major issue for most college staff I spoke to. While there was discussion of the difficulties in getting access to new and 'state of the art' machines in industry, in general these problems seem to have been resolved satisfactorily, rather than representing an area of long-term difficulty.

Industry views

Time constraints meant that I was able to speak only to a small number of people in industry, and these were almost exclusively from the training area or those working in industry training committees (although this latter group did include two public servants concerned with industry training). However, so different were their views from the two previous groups that it became obvious that here a very different perspective exists. As might have been expected, industry people were very outcome oriented, and spoke on interaction in terms of what was put in to achieve a result. Often referred to as the 'bottom line' perspective, the emphasis was on return on investment.

From the viewpoint of those I spoke to, interaction between industry and TAFE was largely seen in terms of those in industry saw their role as attempting to achieve a particular outcome and then committing the necessary resources. Most saw the major opportunity for interaction being in terms of course design (and secondarily in the more general development of the TAFE system). Equipment was secondary to the importance of ensuring the course (and hence the qualification) met their needs.

A second concern for many people in industry was that of competition, and ensuring that competitors did not get an advantage. Thus representatives were quick to point out that in some cases they did not want all students to get access to their technology - it was part of what was giving them an advantage against other companies in their area. Equally, they were anxious to know what others were doing or proposing. In its own small way, the course advisory committee was another part of the territory in which industrial competition was waged.

Finally, industry representatives were sensitive to the issue of what constituted 'the industry' in their area; for many, the industry actually comprised a wide range of groups, some of whose options were more easily accessible than others. A typical example is the automotive industry. Here there are a small number of manufacturers, a larger number of dealers, a much larger number of repairers and an equality large number of panel beaters, and a very large service and support industry, especially petrol stations. In dealing with 'the industry' it is relatively easy to talk to manufacturers, whose own representative body is well integrated; access to panel beaters is much harder - and the more so for a regional college which may have excellent links with local firms, but little idea of the statewide perspective.

Of course, diversity is not the only problem in industry. In the case of heavy electrical engineering, for example, in Victoria the State Electricity Commission is said to employ something like 80% of the tradesperson. Thus to a large extent the 'industry' is the SEC. Here the issue is to try and maintain some diversity in the face of one major source of views about appropriate training.

CHAPTER 3: ISSUES

Overview

As the preceding chapter has noted, views on what "really" constitutes TAFE/industry interaction differ according to the group in question: this variation is significant because it illuminates a number of underlying issues that are critical to the question of liaison.

In this chapter, seven basic issues are examined, together with their implications for interaction between TAFE and industry.

These are:

- ignorance of what TAFE does;
- the credibility of TAFE awards;
- staff attitudes;
- what constitutes an industry;
- identification of industry needs;
- competition; and
- state versus local needs.

To some extent, these issues need to be understood before future TAFE/industry liaison can be significantly enhanced.

Knowledge of TAFE's role

One critical issue frequently mentioned by TAFE college staff was their concern regarding industry ignorance of the range of TAFE activities. Industry's lack of awareness was seen to be a major stumbling block to more effective liaison. This concern had a number of dimensions.

First, and foremost, many college staff felt that people in industry did not appreciate the range of vocational education options offered through the TAFE system. They felt that many people associated TAFE with the off-the-job component of apprenticeships, and were unaware of the pre-vocational, short course, post-trade, and para-professional training areas, not to mention the adult education component. They felt it was important to get more industry people into colleges to see what was going on. Marketing of TAFE to industry was seen as critical. A brochure prepared by the Australian Association of TAFE College Principals promoting TAFE was used as an example of the right approach to adopt.

The industry representatives I spoke to, did offer some confirmation of this concern - not least because they often felt that training needs outside the apprenticeship (and now traineeship) were better met by other agencies. However, industry training committee staff were well aware of TAFE's broad range of activities, as were those industry people who had used TAFE consulting services, or had commissioned a short course.

A more significant area of concern from the industry side emerged in relation to TAFE priorities: some industry people felt that the focus was misplaced. To substantiate this claim, two examples of misplaced priorities were raised.

The first was in relation to course accreditation. A common story was that the person being interviewed had been on a course advisory/development panel which had been involved with part of the accredited program. The process was said to have taken "two years or more" (in one case, the claim was 5 years), and although the course was eventually approved, in the process some components were already out of date. It was felt that a more rapid course approval system was needed. TAFE in NSW has specifically responded to the need for 'fast tracking' for industry by setting up an Industry Liaison Unit. One of the objectives of this Unit is provision of "a fast lane to get programs going".

A second example relates to changes in nomenclature and course structure. Several people reported concern over what they saw as time wasted in discussions over the levels of courses, and one respondent claimed to have been on a working party to review whether a course should be reclassified from 'certificate' level to an 'associate diploma' award.

These concerns were exacerbated from the industry side by two other issues. First, some reported problems in knowing to whom they should be talking. A common experience was to start discussions with one person (often where a proposal had been initiated at central office level), only to find that the results had been passed on to another, then to a college, and that in the process the same information had to be relayed again and again. Some people said they felt that they had been shunted from person to person, and that no one was taking responsibility for the task. Dealing with a large number of colleges was seen to be a problem also. Indeed, this situation seemed to be the corollary of the 'network' point made in the previous chapter - where someone did not have personal links with people in the college, the process of negotiation over a course proposal could be quite difficult to manage.

For many this situation was aggravated by a perceived lack of availability of TAFE teaching staff. Industry respondents felt that an organisation partially committed to working in liaison with industry should have to work on a comparable basis, with staff available 48 weeks of the year, and at night and weekends as required. This was, of course, a matter of perceptions - many staff do work long hours and often outside the usual 'office work' times. Moreover, recent changes in teacher awards have increased staff availability in Victoria. However, industry expectations of staff accessibility (and course accessibility) did not accord with actual practice.

In this regard, one significant step in Victoria has been the development of subsidiary consultancy companies, which provide an opportunity for this kind of industry liaison. Such college-owned companies have not yet been developed to anything like the same extent in NSW or Queensland, but discussions are being held to encourage their future development. This would seem to be most appropriate both as a means of improving industry contact with TAFE, as well as a source of revenue for colleges. (The role of such units is further discussed below).

A second matter which compounds problems over TAFE/industry understanding is the existence of so many alternative sources of training. TAFE colleges compete against other tertiary institutions in terms of consultancy and short course provisions (especially CAEs), and there are a number of other 'providers'. Some of these are private training and consultancy companies, some are professional bodies, and some are part of the industry training system itself, such as the industry training committees.

This last category, the industry training committees, provides an excellent example of misunderstanding. The committees (ITCs) have been established on a tripartite basis, usually with TAFE included among government representatives. The principal role of the committees is to provide advice to tertiary institutions on training needs. However, the committees are only part funded by the Commonwealth Government, on the basis that the rest of the operational expenses should be met by the appropriate industry. In practice, the majority of committees raise the balance of their recurrent funding (about 60% of their total needs) by conducting courses. In some cases, they contract work out to TAFE personnel (although often as individual consultants), but in other cases they do not use TAFE at all. Many people in TAFE see the ITCs as straight competitors, and cannot understand why government funds are used in this way. Many ITC people are frustrated at the lack of time they can devote to giving advice to TAFE, because of the need to raise additional revenue.

Finally, in this section on industry's lack of understanding of TAFE, one significant problem area relates to choice of most appropriate TAFE body with whom to liaise. In Victoria, where colleges have a reasonable degree of autonomy, many people in industry want to deal with 'their' local college; in practice, many issues (including most to do with the accredited course program) are the responsibility of central office, (now the State Training Board). This problem does not appear to exist to the same extent in NSW, where the system is rather more centrally operated, and the principal focus of industry liaison is with the central office 'schools' system. In Queensland, it appeared that the situation resembled that of Victoria. The general issue of state-wide versus local needs is further explored below.

Clearly, TAFE has a major marketing task ahead of it in which to address lack of knowledge about its activities, and misunderstandings on some crucial issues. A key issue in establishing more effective interaction must be a clearer image of what TAFE does. By way of conclusion, the comments of one college person, echoed by many others, is worth repeating: "this starts at the top; we need someone responsible for TAFE who has a clear vision of what we are about, and where we are going, who has visibility, and keeps in the limelight".

Credibility of awards

While TAFE college staff expressed concern over industry's lack of understanding of TAFE's activities, industry representatives themselves voiced considerable concern over the credibility of awards offered by TAFE. In part this appears to be a function of the 'local versus state-wide' issue mentioned above, and is more fully discussed below. Partly also it relates to the mechanics of the TAFE system itself.

The most prevalent example of this concern related to course sequences and transfer of credit. Industry people believed that for each industry area there should be a sequence of courses, ranging from the most basic up to degree level, with appropriate credit given for studies undertaken at any level. In their view, people should be able to keep on upgrading their qualifications, or return to get 'booster' courses in areas of need. In contrast to this expectation, they complained that many TAFE courses were not recognised between colleges, that credit for previous studies was hard to obtain, and that recognition of courses between TAFE and higher education was almost non-existent.

This matter is, of course, an area of concern within the TAFE system, and has been addressed in other work by the TAFE National Centre (eg. K Parkinson, The articulation of TAFE middle-level and higher education courses in Australia, 1985; K Parkinson et al, Cross-sectoral transfer from TAFE to higher education, 1986). However, some college staff (and central office as well) made it clear they opposed course sequencing and credit transfer - certainly if this extended outside TAFE. Their reason was concern that such an approach might serve to undermine the value of TAFE qualifications: this was a view that industry people found quite untenable.

A second element of the concern over credibility of awards relates to comparability between courses. Several industry people remarked on the lack of national curricula, and their concern that even within a state courses were not exactly comparable. It was argued on a number of occasions that it was not unreasonable to expect that a person who holds an associate diploma in a given subject has covered (broadly) the same course as someone who obtained the same qualification from another college, whether in the same state or not.

TAFE staff attitudes

Mention has already been made of the key role that individuals can play in facilitating interaction between TAFE and industry. For many of the TAFE staff I spoke to - and these tended to be people in the vanguard of liaison - the training and attitudes of TAFE staff generally were seen to be a critical and limiting factor.

The widely held view is that the majority of TAFE staff are ill-equipped to promote more effective liaison between industry and colleges. A typical teacher is said to have last had contact with industry "many years ago", and now believes "I know what industry needs better than industry itself". Such a teacher believes that she/he has been hired to teach, and will be paid by the government to fulfil this role; that liaison with industry is unnecessary, and having to actually consult and run programs on their terms would be quite unacceptable. Such a teacher is said to fear working with industry, and lacks the consulting skills, needs analysis techniques, etc that are required. The description is, of course, somewhat ridiculous, but it illustrates a real concern. Many of the staff I interviewed believed that only 10% of their colleagues had the necessary skills and confidence they saw TAFE requiring in the future - as liaison with industry increases in importance.

While views on this problem were common to all three states, and held by people from various backgrounds, opinions about solutions varied greatly. Some felt that the problem began with training, and that the courses offered by the teacher training colleges were in urgent need of revision. In part, they saw the need for more relevant skills to be taught in the initial training, but some felt much of the area relating to consulting skills, training needs analysis, etc area should be the function of a (compulsory) post-initial training program. The issue of appropriate training for TAFE teachers is a complex one, and is addressed in another Centre publication (W C Hall, The continuing education needs of TAFE college staff: full-time lecturers, 1987).

Others believed that staff lacking in confidence (and/or training in relevant areas) should be introduced to industry by those whose skills or entrepreneurial flair were more evident, and given encouragement. At some colleges, like Yallourn TAFE College in Victoria, client teams had been established, and these gave those less familiar with industry liaison an opportunity to gain skills and confidence.

The Victorian TAFE Board developed an Industry Training Development Program which seems very relevant in this area. The explicit purpose of the program is to place TAFE staff in industry to carry out training needs analyses, and develop training development plans. While this scheme would certainly assist industry, it has the additional benefit of enhancing staff knowledge of industry, and hence increasing their confidence in undertaking consultancy and liaison activities.

Finally, some staff saw the issue as a 'generational' one, and claimed that, as the previous generation of TAFE teachers reached retirement, so younger staff with a more entrepreneurial approach, and with relevant skills, would replace them. However, proponents of this view admitted that a real danger existed of two categories of staff emerging. Some suggested this problem already existed: there were others who spent a reasonable amount of time out consulting and working with industry, and there were others who worked only at the college, and the gap between the two groups was widening.

While solutions to the problem vary, there is no doubt that the present climate requires a much more active dialogue between TAFE colleges and industry. Staff will have to adapt to this new environment, and unless steps are taken to assist staff in becoming more effective in liaison, opportunities will be lost, and the present cycle of industry interest in TAFE will decline - to the detriment of TAFE.

Identifying the industry

In liaising with industry, a key issue is, of course, liaison with whom? There are three factors that are relevant in this:

- industry complexity;
- ignorance of the structures; and
- internal conflicts.

First, as referred to earlier, industries are themselves complex associations, where the boundaries are unclear, and the nature of the participating groups varied.

By way of illustration, a college might want to develop a course in association with the airline industry, given the growth potential that exists in this area. One of two areas might be of interest - let us take engineering and flight reservations as examples.

In engineering, the manufacturers are almost entirely overseas, and so any discussions have to be with the maintenance and repair staff. With only a small number of major airlines to deal with in Australia, the situation is quite simple. However, once the technology is examined closely, we find that the traditional field of mechanical engineering is faced with a number of new technologies - plastics, ceramics, and the new alloys. Already, staff with an engineering background find they have to deal with others whose expertise and background is quite different. Moreover, while there is no ITC for the airline industry, there certainly is for plastics, and ceramics is still seen as part of the building and construction area. If an apprenticeship is being developed, then the college will also have to deal with the appropriate training authority - the new State Training Board in Victoria - as well as the trade committee. Further, while the manufacturer is based overseas, there will be standards and requirements set by them regarding maintenance, and training of maintenance staff.

The complexities in this relatively 'manageable' area are beginning to mount, and it is not surprising to find that it is in areas like these that companies find it easier to arrange training with equipment manufacturers direct, and look after the whole area themselves.

Perhaps keyboard training for reservations clerks is more feasible. Again, there are only a small number of airlines, and while there are competing systems, the principles are basically similar. However, as the technology has improved, so the reservations system is no longer solely used by airline staff: ticketing is now prepared by people in the travel industry, banks, motoring organisations, etc. Thus who constitute the representatives of this 'industry', and with whom can one liaise to develop an accepted program? As with many other areas, a course developed and accepted by one part of the industry may be quite unacceptable to another.

While there is clearly a problem in identifying what constitutes 'the industry', this difficulty is exacerbated when staff are unaware of the structures of industrial representative bodies

that do exist. As one person from such a representative body explained "it's not good enough to liaise with a few local companies - we represent the industry, and if they don't have the sense to come an talk to us, then they shouldn't be surprised when we block the proposal, because it really isn't in the interests of the industry as a whole".

In this brief project, gaining some grasp of the representative and advisory structures was essential. It was alarming to discover that even a novice's knowledge was sometimes better than that of staff working in program development - even those in the central office of a TAFE system.

Lack of understanding of the industry and its complexity are, to a certain extent, resolvable problems, as long as goodwill exists, and TAFE staff are prepared to work their way around the system. While requests by TAFE staff to familiarize themselves with industry may necessitate determination and patience, industry on the whole accommodates such requests.

However, the third issue, internal division within the industry, may lead the best intentions to founder. There is nothing surprising in this. Industries do have their internal disputes - between major corporations and small competitors, between long established companies, and new enterprises seeking to carve out a niche, and between sectors who feel that each other lacks an appreciation of the other's role (the plumbers are said, among others, to sometimes be at one remove from the rest of the building and construction trades).

Thus in dealing with the industry this is yet another issue that has to be borne in mind. Any developments in TAFE/industry liaison therefore have to be constructed in a climate where internal competition and conflict are as real as its overall complexity.

Identifying needs

The preceding four issues have been concerned with the context in which liaison between industry and TAFE takes place. This issue and the remaining two are at the heart of liaison itself.

Many TAFE staff reported what they saw as a paradox; on the one hand they were being asked to respond more directly to industry needs, and on the other they were being encouraged to develop skills to assist industry determine what its needs really are!

The common illustration of this point was the story told by almost every TAFE person interviewed. A company would ask for someone to assist them with a 'training problem'. The college person would go and see what was being done, and identify the training need. Almost invariably, what was claimed to be a training problem turned out to be something quite different. The training issue was a symptom of another problem, and once this had been identified, an appropriate response could be developed - sometimes training, but more often organisational redesign, task restructuring or something similar.

Some firms are extremely sophisticated in their approach to situation analysis and training needs identification. As one example, and there are several others, the SEC in Victoria has developed a most sophisticated approach to reviewing and operating its whole manpower development program. Its approach is based on a thoroughgoing analysis of training needs, and recognition of the vital role training plays in keeping the staff 'resource' up to date.

However, for some companies, training needs analysis and manpower development skills are not readily available. As a result of their working with difficulties on a day-to-day basis, people in industry are often unable to identify the real source of their difficulties (a problem about being able to see the wood for the trees that is just as applicable to TAFE, or any other enterprise for that matter). The symptom is usually clear - people can't use the new machines; but the cause, that the workflow has not been changed to meet the new technology, say, is not so obvious. TAFE staff with good needs analysis skills, and general consulting sophistication, are able to identify these underlying issues.

Moreover, here the issue of TAFE staff capacities becomes central again. Such skills are not widely available, and as pressures for accountability mount, so time dedicated to problem-solving for industry is less easy to justify unless charged at a realistic cost.

Recent changes in Victoria have emphasised this last point. A new agreement has been negotiated for TAFE teachers which increases teaching hours, and availability of staff. However, the new agreement appears to be drawnup on the basis that staff are paid for <u>teaching</u>.

The corollary of this last point was unclear to many in the colleges: some saw emphasis on payment for teaching as indicating that industry liaison was fine in theory, but not in practice; others considered it was effectively stating that work other than teaching had to be paid for by industry. Insofar as the latter view prevails - and certainly central office staff in all three states saw this as increasingly the case - the implications are important. TAFE is likely to find itself competing with private consultants and other tertiary institutions with little by way of price advantage. Realistic charging means that a TAFE college consultant might be trying to win a contract over someone from a university or a highly respected private firm: for many, the prospect of such competition was daunting.

There exists a further issue relating to TAFE's consultancy on training needs to industry. As the financial aspect of the service becomes fully developed and TAFE is paid for services rendered to industry then industry is likely to look more closely at the other costs entailed in the relationship with TAFE. At present, much of this is done on a reciprocal basis - by barter. However, if TAFE starts seeking payment for its services, industry may be forced to do the same. Many reported a fear that this would lead to many unexpected bills that could wipe out whatever income gains are made by charging for services.

This theme is further explored below.

Industry priorities

In the day-to-day business of determining prospective areas of liaison between TAFE and industry, a second issue, which received almost as frequent a mention as the identification of needs was that of industry competition.

Both college staff and industry representatives reiterated the point that companies must adopt a pragmatic approach to any proposal related to liaison with TAFE, and in particular to the sharing of facilities. This approach resulted from both a necessity to ensure adequate returns on investments and a need for secrecy vis-a-vis competitors.

The first of these concerns is most relevant in the case of new high technology equipment. A company investing in the 'state of the art' machinery is likely to have to pay a significant capital cost, and therefore want to recoup this as soon as possible. One college had discussions with a printing company over running training courses using a new (and expensive) printing facility. The process ran smoothly until the discussion turned to the question of access to the machine, when it was revealed that it was being used 24 hours a day, seven days a week, to try and recoup the investment costs as soon as possible. Such a problem is less likely to arise for a larger company, where the investment costs can be borne more readily, eg Fairfax Press makes its plant available to Sydney Technical College students for printing machine trade training.

Not many companies face such major expenditures, but rather more common is the competitive secrecy element in enterprise. Several companies' success in the marketplace is the result of their having developed a technology, product or approach which is 'ahead' of their competitors. While they may want to obtain trained staff, they do not want to do so at the cost of having other people trained who could subsequently assist their competitors.

Of course, such a situation does not prohibit running a short course for the company concerned, although it does preclude using equipment or technology in part of the accredited (and hence publicly available) program. In running short courses of this kind, a college can obtain a particular advantage, however. One Victorian rural college ran a program for a food manufacturer who insisted on maintaining secrecy about this process being taught. However, the fact that such a course had been run was not secret and the college subsequently developed its consultancy service as a result of this initial activity.

Local versus state-wide needs

The final issue which plays a major role in determining levels of liaison between industry and TAFE has been noted before, and this is the question of the balance between state-wide and local interests.

The research methodology did not allow this matter to be explored in NSW or Queensland to any significant degree, although comments suggest the situation in these two states is similar to that in Victoria.

The significance of the balance to be reached between local and state-wide needs was made particularly clear when visiting rural colleges, although the issue was also evident in some metropolitan centres. A typical problem arose in one college over an engineering apprenticeship, where the local company (the only one that took apprentices for the college) wanted the final year teaching to include some instrumentation components that related to their particular needs, but were not part of the agreed award program. The college wanted to respond to demands of the local employer, who was part of their community, and also wanted to ensure the employer's continuing support for their program. On the other hand, the statewide trade committee was strongly opposed to the development - even though local management and unions supported the variation.

Another typical problem occurs in the development of the non-accredited program. A local bank, in discussions with its nearby TAFE college, saw value in a short course for keyboard staff. However, before they could get approval to run the course, they had to get approval from the head office to commit funds for this purpose. When the bank's head office received the proposal, they saw the proposed training had merit, and could be applied to all branches. They then contracted with another, inner city college to run short courses for all their employees, bringing them into the centre.

CHAPTER 4: APPROACHES TO INTERACTION

In this chapter, actual instances of liaison between TAFE and industry are examined in the context of the typology set out in Chapter 1. While the major focus is on examining areas of successful liaison, attention will also be given to the extent of such liaison.

At the time of conducting this research, more systematic data on the quantity of interaction between TAFE and industry was being collected in NSW and Victoria, but was not used in this study. In the former case, a survey was being conducted from the properties area of central office; in the latter, data was being collected from colleges on their response to the Victorian Government's economic and social justice strategies. Collection of data of this kind will assist planners concerned with evaluating future opportunities for increasing TAFE liaison with industry.

This general area has also been the subject of internal papers and reviews. In NSW material was provided on TAFE/industry liaison and prepared by central office staff. A very useful paper, prepared by the NSW Department of TAFE, TAFE and industry - consultation and participation (West, T: July 1987) succinctly sets out the pattern of industry and TAFE staff interaction that occurs there. It is a most useful summary of a situation typical to all three states.

Staff

As already noted above, staff sharing is the most highly used although least obvious method of liaison between TAFE and industry.

a) TAFE staff in industry

A major element of existing TAFE staff interaction with industry is through membership of advisory committees, boards, working groups and professional bodies. State Training Boards and Commissions, trade committees, and other parts of the industry

training system all tend to include TAFE representatives - usually as nominees of the TAFE system, but sometimes as individuals in their own right. A significant number of TAFE staff are also involved in trade or professional associations, and are encouraged to maintain such links.

A second area of TAFE staff involvement with industry is through the provision of consultancy and training services, either through the provision of short (non-accredited) courses, or as training consultants.

In the case of Victoria, this situation has been formalised to the extent that many colleges have now established separate subsidiary companies for the provision of training and consultancy services using TAFE staff. At this stage of their development, these organisations are not a major source of additional income, although inspection of the financial statements suggest that after meeting all costs (including a fee payable to the host college, and the cost of Centre staff salaries), a small surplus is being achieved. It may be another two years however before these services are a significant source of income.

The consultancy role in colleges has been built around the provision of short (non-award) courses for individual companies or industry groups. While this practice has existed for some time, the potential for short courses to act as a means for improving TAFE relations with industry, and also as a source of income, was noted in the early 1980s (see Day et al, 1983). Short courses are now a major element of consultancy company activity, and manuals have been developed to assist those designing short courses for industry (eg Morton, 1987).

Concerning the Victorian situation two additional points need to be made. First, college staff are not obliged to work through the consultancy company, and there have been instances of competition between a consultancy company and a department in the college. Since staff working for the consultancy company are remunerated for time spent on outside work - where this is not part of their regular program - it seems anomalous that such variation exists. It would seem sensible that staff only work through the college's consultancy company, if only to reduce industry confusion about with whom they are working.

Second, the consultancy activities of Victorian colleges have probably been subsidised to some extent. This has reduced outside charges, but can quite legitimately be defended on the benefits such activities bring back to the normal program. However, this situation is unlikely to continue in the future. The impact of the government's policies in this area, and the new teachers' agreement, are likely to lead to a more realistic costing of services. Colleges are likely to find themselves in more 'real' competition with other agencies, private and public. Furthermore, a more competitive environment may also be a less lucrative one.

This observation is even more pertinent in the case of the other two states, NSW and Queensland. There, under present legislation, colleges and the TAFE departments cannot set up subsidiary companies, although consulting arms can be established (as with Venturetafe in Queensland). Further, with a few exceptions (eg canteens), any moneys obtained through sale of services have to be returned to general revenue. As a consequence, much of the consulting and training assistance is provided free of charge (or with a nominal charge in the case of short courses in Queensland), on the basis that services are returned in kind.

With the emergence of subsidiary consulting companies in TAFE colleges - developments already being actively considered in both states - combined with a general move towards TAFE recouping more and more costs from industry, this pattern will almost certainly change. As in Victoria, consulting will be charged on an increasingly 'real cost' basis, and it is likely that much of the in-kind return provided by industry will no longer be as readily available.

The longer term consequences of this situation are difficult to estimate. As colleges in all states market their services more aggressively, they are likely to find the consultancy area, especially for in-company training, an important source of revenue. However, it is likely that colleges will have to work harder to maintain the financial status quo as they may face increasing costs for items hitherto provided on a barter basis (especially raw materials, and some equipment), and simultaneously find that state (and the Commonwealth) governments expect them to operate with less than 100% recurrent funding met through public revenues.

Clearly, in this situation, TAFE staff availability to industry will be a function of industry's willingness to pay. In such a situation, it is likely that smaller companies will be less inclined to make use of TAFE staff, larger ones more so. TAFE colleges and central offices may need to review the mechanisms for working with small business in this regard.

Further, colleges may have to adopt some of the commonly used responses to dealing with competition - increased advertising of services, building a reputation for quality, and identifying areas where other organisations are currently unable to compete. Thus, it may be beneficial to increase specialisation, so that colleges can offer consulting assistance to industries and in areas of technology where no one else has comparable skills. This approach has been adopted by several colleges already - for example, the work done by the Gordon Institute in training trainers for the aircraft industry around Geelong.

A final area in which TAFE staff liaise with industry is through various professional development activities. This is an area of growing importance. Victoria has a significant allocation for this purpose (to allow nearly 200 staff years for TAFE personnel to work in industry), and while this apparently overshadows provisions in Queensland and NSW, it is likely that provisions in these states will expand also. Staff exchange for development is extremely beneficial to both areas; it exposes TAFE staff to the realities of contemporary business practice and current technology, and it enhances opportunities for industry to learn about TAFE and its activities.

b) Industry staff in TAFE

In terms of numbers, the two major sources of industry staff working with TAFE are advisory committees and part-time teachers.

In relation to advisory committees, each of the states has a course development and review system which places priority on industry involvement. While many industry people appear to regard this as a mixed blessing, since the course development process may be slow in their eyes, it is an important input for industry views. College staff frequently reported the value of advisory committees, although recognising that they were sometimes unable to respond to all the requests made.

An important element in the effectiveness of industry involvement in the advisory process is the nature of the tasks they are offered. Where the process is really concerned with advice alone, frustration appears to be higher. Where the committee carries out tasks, the opportunities for satisfaction are much greater, and industry representatives less frustrated. Thus involvement in course development is a far more rewarding process for industry people than participation in standing committees or reviews. Equally a course advisory group that helps plan 'real work' elements for the program (as with the example of the agricultural apprenticeships program at Loddon Campaspe) is more effective than one that merely comments on components of the college teaching program.

The second major area of industry staff involvement with TAFE is in the teaching field. The largest component of this is part-time teaching, where the great majority of teachers are from industry. While not teaching as industry representatives, they nonetheless provide a 'hands-on' perspective derived from an understanding of the relevance of what is being taught.

It is ironic that, as teaching areas become more established because of increased demand the numbers of full-time teachers increases and thus students' opportunity to interact with people still working in industry - that is, part-time teachers - declines. While this touches on all sorts of employment and industrial relations issues, it is worth noting that some attention should be given to maintaining a significant element of part-time teaching in major courses.

Beyond this, industry staff are occasionally hired specifically to give assistance. This occurs quite often when new equipment is purchased, or new technologies are being introduced to a TAFE program. At the same time, there are many instances of industry staff working on continuing teaching programs - as with SEC staff involvement in heavy electrical teaching at Yallourn TAFE College, or stonemasons providing on-the-job supervised training as part of the apprenticeship program at Eagle Farm TAFE College.

Payment for industry staff assistance in such areas as these varies. Where TAFE staff are learning about new equipment or technologies, their training may be provided free of charge. In the automotive industry, for example, new product demonstrations may be conducted on college premises, and space reserved for two

staff to attend. Where the arrangement is longer term, there may be a fee paid, or an exchange effected. Thus, in the two examples cited above, Yallourn provides training for the SEC in return, and there has been a long-term practice of exchange established. In the case of the stonemasons, a fee is paid per student/per hour. In this case it should be noted that the students are working on site, and using equipment that otherwise would be employed to make products - so the fee marginally compensates for lost production. In both these instances, of course, the students are also getting access to equipment - in the case of the stonemasonry course, equipment that would have cost some $0.5m to otherwise acquire.

As with TAFE staff assisting industry, it seems likely that the trend will move away from 'quid pro quo' arrangements, and more likely to involve some kind of charging. Within the TAFE system, the emphasis is on ensuring that services are charged for, and within industry the current business ethic is to make each operating unit self-financing and thus require charging for such tasks. However, within this trend, there will still be scope for entrepreneurial TAFE staff to barter and make deals.

c) Summary

Considerable liaison exists between TAFE and industry. At the same time, there is scope for this to increase, especially if TAFE teachers are to remain up-to-date with industry developments. Economic pressures are likely however to lead to greater emphasis on charging for services.

Physical facilities

In the original typology, three situations were envisaged:

- the facilities were owned by industry, and made available to TAFE;
- the facilities were owned by TAFE and made available to industry; and
- the facilities were jointly owned.

Given the discussion in Chapter 1, attention was paid to the first and third of these options in particular, taking into account the current climate of interest in seeking a greater contribution by industry to training.

a) Industry owned facilities

One of the major ways in which industry has assisted TAFE in the past has been by the donation of equipment and raw materials.

Such donation has taken many forms. In some cases, the donation is a once-off activity, when a firm no longer needs a piece of equipment since it is being replaced with newer, improved technology, or it is no longer working efficiently. Often through a link with a college, via a staff member having worked at the company concerned, an offer is made for the college to receive the equipment as a straight donation. Some cases were also cited where equipment was damaged in transit, and the discarded item then given to a college which could attempt to repair it.

Equipment given in this fashion often needs repair work done, and in some cases the donating company helps meet the cost of repairs, or more usually provides some expert assistance.

A more advantageous situation occurs where a college establishes an ongoing link with a company. In these circumstances, equipment as well as raw materials may be supplied on a more regular basis. Thus a motor car manufacturer, engine manufacturer, or component constructor may build up a relationship with a college specialising in automotive trades, and supply equipment for teaching purposes on a continuing basis. A number of colleges have arrangements of this kind, or with raw material suppliers who may donate materials on a needs basis. Usually companies who enter into this kind of arrangement are large, and thus see these costs 'repaid' in terms of obtaining qualified staff from students completing college courses.

An interesting extension of this approach has developed through some industry 'skills centres'. One example has been in the furniture industry, which has set up a Victorian Industry Training Centre. This was established by the State Government and the relevant industry, and includes CAD/CAM equipment and other facilities: it has been set up on the basis that 50% of the time these will be used by TAFE colleges for final year apprenticeship programs.

Another industry centre, the Automotive Research and Development Centre in North Melbourne has become a focal point for the distribution of information and equipment to those colleges

involved in light automotive courses The Centre, which is industry supported, is used as the liaison point for manufacturers, rather than dealing with the several separate colleges. Through it they can ensure that information on new technology and products is sent to relevant organisations, and equipment such as engines distributed. (This Centre is further discussed below).

It should be noted that some industry skills centres are entirely industry focused. For example the Timber Industry Training Centre in Victoria is not available to TAFE although it is seen as running in a complementary fashion to TAFE training, rather than in competition.

To return to the general issue of donation of equipment, despite being of great benefit to colleges, such donations are not without problems. In some cases, colleges have refused offers of equipment as they did not require it themselves. Refusal of equipment can sour a company's enthusiasm for a college (although sometimes they appreciate the realism of the decision): it is more tactful to accept an offer, and then find another college who can make use of the donation.

More significant is the fact that some companies regard the donation of a piece of equipment as 'their contribution', and having made that contribution see no reason to do anything more. In one extreme case, a major NSW company made a large donation some 20 years ago, and has lived off this ever since. This situation is of real significance also for some skills centres, which have found it relatively easy to obtain an initial donation of equipment, but harder to obtain continuing industry support.

Another problem relates to the intrinsic value of the equipment. Often it is machinery that is no longer used in the industry, having been superceded by a new generation. In these cases, although the equipment may be of some use in initial training, it does not remove the need to acquire more advanced equipment for later in the course.

A further complication in relation to the intrinsic value of the equipment results from differences between manufacturers. This point can be made most graphically in the computer area. Many companies have donated computer equipment, which has been used for a range of activities from self-paced learning to specialist training in design and manufacturing. In each case, the

manufacturer of the equipment has set up systems, operating procedures and programs that are specific to that machine. As a result, transfer between machines may be difficult, and a 'general' training program may actually be heavily slanted towards a particular company in the marketplace (learning programming on an IBM computer, for example, or word processing using a Wang computer).

Finally, individual companies' appreciation of the importance of equipment for training varies greatly. Major industry organisations are well aware that this is an intrinsic part of acquiring new equipment. At the extreme, when a major power station is built it is recognised that part of the cost includes the station simulator for training: for a modern power station, such a simulator may cost some millions of dollars.

However, smaller companies do not necessarily appreciate this need, and purchase only for production requirements. In reviewing this issue, Gallagher noted that taxation incentives to purchase a additional piece of equipment for training purposes would be helpful: it is already the case that machinery bought for 'educational purposes' is free from sales tax, (see Gallagher, op cit, page 10). There are however, clearly limits to this: a printing firm may wish to invest in the latest printing equipment, but a small firm will never be able to purchase more than one set of equipment, and then, if recent examples are a guide, the firm needs to exploit the machinery as fully as possible in order to recoup their capital outlay.

Three other ways whereby TAFE gained access to industry owned equipment were found. First, in some cases equipment is made available on-site, for students to observe and even operate under supervision. Examples of this have already been cited, as with stonemason's machinery in Brisbane, and SEC equipment in the Latrobe Valley. At present this seems to be transacted on either a 'barter' or 'nominal lease' basis, and a necessary precondition is that there is some existing link between the college and the organisation concerned.

Second, there are some instances of equipment being lent for a short period for 'real work' to be undertaken: examples of this include the loan of heavy earth-moving equipment, or the 'loan' of damaged automotive parts which students may repair.

Finally, students may be able to get access to equipment in order to carry out "real work" under the supervision of college staff, rather than industry personnel. An example of this already cited is that of "real work" on farms.

It is clear that in all these cases, a key element of equipment sharing where industry is the 'owner' of the equipment, is the existence of a good link between the particular college and the industry concerned. In Victoria, where many such links have been forged over the years, it was striking that - even though at times great ingenuity has had to be employed to obtain equipment - access to equipment was not a major concern. Evidence was less conclusive for instances in both NSW and Queensland.

These remarks should not be misconstrued or taken too literally. Access to recent high technology or 'state of the art' equipment is a continuing problem for TAFE, and funds set aside for this purpose are essential. However, as networks with (larger) companies have been established, so the combination of joint purchasing and other arrangements with industry have ensured that most colleges have managed to survive. Further, state governments have often recognised the necessity for equipment to complement a needed training initiative: in many cases skills training centres have been funded on this basis (see below). Apart from these, two examples of other developments where the government played a key role come from NSW - although similar initiatives could be quoted from the other states. In the Hunter Valley, following concern over industry decline and high unemployment, the Hunter Plant Operator Training School was established, with funding from both industry and the government. At Padstow, an aircraft engineering training complex has been established, and this has entailed some $7m of equipment being purchased.

However, the real significance of maintaining links with industry lies in their relationships of the future. If TAFE colleges are to continue to get access to needed equipment, then a premium must be placed on good relationships with industry - there must be a real partnership. As noted earlier, this must also mean that any move towards more charging for TAFE services should be tempered by concern to maintain the good elements of the present informal bartering system. An effective partnership can be built on a clear understanding of obligations and liabilities, but such a clear understanding does not preclude genuinely useful barter to the benefit of both sides.

Also, while many elements of the typology were found in practice, it is also clear that most industry equipment is acquired by TAFE by straight donation, or on a loan basis (often without any fee charged). While there is no doubt that industry can be asked to do more in this area, it is also the case that many firms - especially the larger ones - do already recognise and meet their obligations.

With reference to Gallagher's report on the situation in Western Australia, two final points might be made. First, use of company equipment in situ is a difficult and potentially ineffective strategy. Firms generally require access to their equipment on demand, and this need is compounded by concerns over accidents, damage to machinery, lost production, etc.. There are exceptions to this, however. In some cases students perform (limited) 'real work'. Second, respect for TAFE instructors' skills and knowledge may be such that the company is confident adequate care will be taken (a situation apparently less common in WA - see the Appendix).

Lastly, there is use by TAFE of industry facilities other than equipment. Use of training rooms, seminar rooms, etc. although relatively infrequent was reported. However, two illustrations of this occurring are informative. First, in Northern Queensland, the Queensland Division of TAFE has made good use of company facilities. Mt Isa Mines makes available company training premises for programs run by Mt Isa TAFE College. As the major employer in this region with company facilities representing a major component of the total facilities available this action is both sensible and unremarkable. In a similar fashion, Comalco facilities are made available to Cairns College of TAFE students at Weipa. Second, in the Latrobe Valley, the SEC makes available facilities for training for Yallourn TAFE College students. Although they probably occur, instances of charging for use of industry facilities were not reported.

b) TAFE owned facilities

In contrast to the situation with industry owned facilities, the greatest use of TAFE facilities by industry is that of classrooms and other teaching facilities.

Such use is on a charged or free of charge basis (the latter usually part of a quid pro quo arrangement). Two examples, out of the many instances where this occurs, can be cited.

Holmesglen TAFE College specializes in the building and construction area. In addition to its own training and teaching rooms, it has a training and seminar complex at one end of the College, where the Building and Construction Industry Training Committee staff, and the Group Apprenticeship staff for the area permanently reside. These tenants pay for use of the facilities, as do those using the training rooms to run courses. On the other hand, Mt Gravatt TAFE College has a theatre regularly used by automotive manufacturers to display new products and cars. Generally users are not charged for use of the theatre, but 'pay' for the use by allowing college staff to sit in on sessions, and by donations of equipment from time to time.

Marketing of educational facilities and associated equipment for training is likely to increase greatly, and be an important source of additional revenue for colleges - especially as training venues increase in demand, and TAFE colleges are often located in areas where other venues are few and far between. Further, TAFE colleges can offer facilities in combination with short courses, and an innovative college like Box Hill College of TAFE is already marketing courses using campus facilities which include 'real work' use of college equipment.

Use by industry of TAFE equipment is rather less extensive. However, some colleges report use of equipment for testing and trialling, and in some cases a fully fledged testing and analysis operation is available. For example, Dandenong College of TAFE has, in association with the Plastics Centre, the Eugene Singer Laboratory, well equipped with testing and analysis equipment. While large companies have similar facilities, this equipment is very useful for smaller plastics firms, and it is intended that the Eugene Singer facility become self-financing in the near future.

Use of college facilities is closely tied to the development of consulting services as a marketed element of the college's operations. In Victoria this is particularly the case but in Queensland and NSW while this occurs to some extent, it is largely done on a quid pro quo basis. However, the area is likely to see considerable growth once colleges can set up consulting operations and retain fees from charged services.

One final element in relation to TAFE owned equipment deserves comment. Some TAFE colleges have bid to get very expensive high technology equipment installed, and where successful have found

themselves at the forefront of technological development. Several examples of this have occurred in the CAD/CAM area, with colleges like Mt Gravatt having a pattern design/fashion facility of this kind, and several other colleges having equipment tied into engineering and instrumentation apparatus. Requests for equipment of this kind, which while very expensive, take colleges into an area where state development needs and Commonwealth interest may ensure that such requests met. Having acquired the equipment, colleges then find they are recognised as a 'centre of excellence' by the industry, and results in a great deal of interaction and co-operation.

The issue of centres of excellence and the skills centre approach is further discussed in the next chapter.

c) Joint ownership of facilities

For those concerned with the future development of TAFE interaction with industry, the existence of a number of projects generically labelled 'skills centres', has been of considerable interest. Many of the outstanding examples of developments in this general area, including TAFE skills centres, industry skills centres, joint programs, and industry within TAFE centres have been described elsewhere. Rather than repeating earlier studies, this report will examine the various types of centres which have emerged, all of which are based on joint TAFE/industry participation to have some kind of joint TAFE/industry basis. Details on some centres are provided in Gallagher (op cit), and the companion South Australian study by Ottrey and Hutchinson (Cross-portfolio project on use of private sector facilities in training, Report to the Minister for Employment and Further Education, Adelaide 1987), especially in its appendices.

At one extreme of these joint enterprises are centres set up by industry, usually with the support of the state department concerned with labour or employment and with a contribution from TAFE.

Examples of this approach include the Furniture Training Centre and the Automotive Research and Development Centre, both in Melbourne. The Furniture Training Centre was established by the Victorian Furniture Industry Training Committee, with support from the Victorian Department of Labour and TAFE. It was intended to make good the lack of success TAFE had in obtaining

CNC equipment for the furniture industry, and provide training in the use of such equipment. The Centre is run by the Industry Training Committee, and hires its own training staff. At the same time, as an original stakeholder, TAFE has been allocated 50% of the Centre's time to run programs, and it is hoped that eventually all final year apprentices in the industry will use the Centre. At this stage it is still being established, and, like most other centres, relies on considerable industry support for raw materials and equipment.

Although similar in administrative arrangements and establishment, the Automotive Research and Development Centre is quite different in purpose. It was established with industry, government and TAFE funding, and has a separate board of management; in addition it houses the Industry Training Committee. However, it is not intended to be a training centre itself, but rather a dual-purpose resource.

First, it is an information and equipment centre, receiving material, information and equipment from manufacturers, and distributing these to colleges.

Second, it is a curriculum development centre, preparing modules to be used in post-trades training, or to be integrated in the apprenticeship program as this evolves over time. It was hoped that TAFE staff would be seconded to work at the Centre, but this has proved slow to get off the ground. In common with the Furniture Training Centre it sees links with other industries as crucial, and is already developing one course with the Plastics Centre at Dandenong.

The essential elements of these centres are that they are run independently of any TAFE college, are intended to work with all TAFE colleges, and are very much identified with the industry. In this respect they can be compared with the Plastics Skills Centres, which have now been established in several states, including in all three covered by this study. Here centres are part of a college, although administratively separate (in the case of Dandenong, actually run by its own Board, on which sit industry, government and TAFE people, including the Director of Dandenong College of TAFE).

Thus the Plastics Skills Centres are closely identified with a particular college, although they retain a strong link with their industry. Again, they rely on industry support and donations of raw materials. Further, as with the earlier

category, they are under pressure to become self-funding operations - although at present, staff costs are met by TAFE. Similar centres are being established or are proposed for a number of other industries.

Finally, some colleges have in-house centres which have been developed as a joint venture with industry, but are for most purposes regarded as part of the on-going college operation. Examples of this approach include the Computer Integrated Manufacturing Centre at Sydney Technical College, the Aircraft Engineering Training Complex at Padstow TAFE College, and the Building and Construction Trades Complex at Holmesglen College of TAFE.

Joint venture facilities of this kind have a number of clear advantages as well as some limitations, and these will be further explored in the following chapter. However, it is worth noting that they all include two significant elements: they allow for a sharing of costs between TAFE and industry, and they allow acquisition of equipment that would otherwise prove expensive to acquire.

Most have been established as a result of a joint venture, with the government acting as a third party and often having to meet quite considerable initial capital costs. This cost has also been a source of one common problem, which is that the longer term financial stability of these centres appears to have been less clearly thought through. Companies have been willing to support centres through initial donations, but the allocation of responsibility for salaries and running costs appears to have been less satisfactory. Further, while the centres are a valuable source of skills training, many programs are developed in relation to industry needs, rather than as part of the accredited course program.

Joint venture centres of this kind are an important complement to individual college liaison with industry or particular companies, over the long term. However, the most effective use of this approach is yet to be settled.

d) Summary

To a significant degree, sharing of equipment between TAFE and industry is very much a function of the relationship that exists between individual firms and staff in colleges, and between industry representative bodies and various 'skills centres'.

This observation is important in that it reflects on future strategies likely to enhance TAFE access to industry-owned facilities; the starting point must be to develop a good co-operative relationship with the industry concerned.

More problematic for a college or TAFE agency must be the development of the most appropriate strategies to ensure that such a 'good' relationship emerges. The lesson to be learnt from this research seems to be that industry reacts positively to those who demonstrate they can make an effective contribution:

- by being responsive to the needs of a particular company or industry group in relation to training;

- by providing consultancy services which are of benefit to a company (as several have noted, the issue is not whether you should charge for consulting, as industry appreciates the nature of a business relationship, but that the exercise was worthwhile - that there are concrete achievements; and

- most important, by maintaining on-going liaison, so that each keeps in touch with the other's views and concerns, and information exchange is sustained.

To draw on an appropriate analogy, if a good partnership is established, then the relationship allows mutual respect and support.

Financial resources

One issue omitted from the initial typology was the provision of money by industry to TAFE. In fact, a number of instances where companies provide funds were discovered, especially in the form of student prizes and awards, and sponsorship of staff development activities. While these contributions are not as significant as many of the others noted above, they do afford companies publicity. Another aspect of this source of support has been recognised by colleges seeking corporate sponsors to build or complete premises within the college - again with the attraction of naming rights to the room or facilities endowed.

Consistent with comments made above, this kind of support and recognition from industry can be an important component of ensuring an effective long term relationship.

CHAPTER 5: FUTURE DIRECTIONS

Part of the task to be undertaken in this project was the examination of the effectiveness of different approaches to interaction between TAFE and industry.

Clearly a systematic evaluation of approaches is not possible within the framework of this study. Rather, a more manageable approach is to summarise some of the more effective elements of the strategies examined, and to consider some of the implications of their adoption.

To give structure to this approach, this chapter looks at two possible directions for future development. They are not mutually exclusive, but represent the two major strands of proposals presented by staff in the TAFE system in the three states, and by industry representatives.

Industry specialist centres

One major theme discussed was that the future direction for greater interaction with industry, and greater sharing of facilities, should be effected via an extension of the present joint venture skills centre approach.

In essence, it was felt that the skills centre approach had many strengths:

- it provided a focal point for industry liaison with the TAFE system in each state;
- it offered the possibility of national liaison given the small number of centres that would have to work together, rather than a plethora of colleges;
- as a physical facility, a centre could be readily recognised as belonging to the industry, as well as TAFE, and thus encourage donations of equipment, raw materials, and other forms of support;

- it could also provide a base from which training advisory bodies could operate, especially the Industry Training Committees; and

- it would provide a single means of communication between the several groups in industry, and the several TAFE colleges, especially with regard to the dissemination of information and equipment.

Further, the evidence of existing centres demonstrated that they tended to acquire equipment and expertise that would otherwise be difficult to bring together.

While advocating the value of this approach, both industry and college personnel also saw the need for some variations to the present approach.

One clear limitation with existing skills centres is that they are obviously tied, in the majority of cases, to one college. Where they are independent of the college system, they are also less well supported by TAFE. Given this, a rather stronger set of administrative arrangements was advocated:

- centres should be based in one location, and on a college campus;

- they should be jointly managed by TAFE and the industry; and

- they should have responsibility for course development, approval and implementation across the state.

This last point is the crucial one. If centres are to have the kind of effect desired by industry, they must be the bodies that determine curricula, and at the same time they must have the responsibility - and power - to authorise courses being offered in other colleges, and to limit course and student numbers as industry needs determine.

In a sense, the proponents of this approach see centres developing into <u>industry specialist centres</u>, bringing together TAFE curriculum development and teaching skills, and industry technical expertise. Such centres would concentrate on developing excellence in their field, and would have a state-wide charter to manage the development of courses at all levels within the TAFE system.

This position would concentrate obligations as well. Each centre would have to support other colleges' teaching staff, arranging in service-training, industry exchange etc. In addition they would have to ensure sharing of equipment. The idea of a mobile equipment 'library' was advocated, an idea that has already seen some use in Victoria and NSW, in the welding and electrical trades areas for example.

Advocates of this approach foresaw that care would have to be taken to ensure that all of the larger TAFE colleges housed at least one centre of excellence. They also felt that this approach made sense in relation to technical training in trade and para-professional areas, but that it was not appropriate to the needs of pre-vocational programs, bridging courses, and teaching in general subjects in the arts, humanities and social sciences, where colleges should be given more freedom to develop curricula within central office guidelines.

This proposal is clearly attractive, especially as it builds on the idea of maintaining continuing links between companies and colleges, a process revealed in the previous chapter as a key element in successful liaison.

At the same time, the approach has its clear risks. The existence of separate industry specialist centres tends to lead to a fragmentation of skills, as each centre works independently of the others. At present, the automotive area requires skills from the mechanical engineering, electrical engineering, plastics and rubber, textiles, design, and CAD/CAM areas. An automotive centre is likely to find itself focussing on the 'traditional' automotive areas, so that skills in the plastics field, for example, are ignored. Such a fragmentation of skills would be highly undesirable, and difficult to avoid in the context of independent centres of excellence - however well-intentioned the managing body might be.

Second, such an approach might put pressure on award uniformity - not within an industry, but between industries. Each centre would develop courses and awards that met its particular industry's needs, but these might not be comparable with awards in another area. An 'associate diploma' could mean quite different things according to the industry concerned, and make the task of regulating and managing awards extremely problematic.

Third, entrepreneurial industry groups could conceivably attract larger sums of money for the establishment of centres than their industry, in terms of its size and economic importance, warrants.

Clearly, the proposal to establish such centres has much to recommend it insofar as it accommodates the interest of TAFE by ensuring greater involvement with, and support for its endeavours from industry; in addition, it will benefit industry by ensuring an effective response to its training needs. However, the centres themselves will require a degree of central monitoring and control that has not yet been adequately resolved.

In this regard, the rather unusual approach (in comparative terms) adopted by the NSW Department of TAFE is worth further examination. There, the existence of a schools structure, cutting across the college structure, creates a matrix of the kind that might be the most effective for the future. If schools were decentralised so that they could operate with on-the-ground liaison between industry and TAFE staff at college level, and colleges had more freedom to run consulting programs and retain earnings from this source, a model might be available for the future. Despite its extensive development of skills centres of various kinds, the Victorian system has yet to develop a coherent philosophy that encompasses the industry/TAFE articulation that is required.

Training levies

A second issue discussed, although in this case initiated from the TAFE side only, was the value of introducing some kind of training levy on industries.

Ignoring the common complaint that industry is already overtaxed, this suggestion has much to recommend it. In particular:

- it ensures that all sections of the industry contribute to training costs, and hence have an interest in ensuring that training is directed towards needs;
- it does not allow one industry to dominate others; and
- it provides a longer term basis for the development of training than does the present system which relies on generosity and links forged over time.

Any levy system would, of course, have to take into account current contributions from industry and offer some kind of offset or rebate for those who contribute in other ways. It would clearly be inappropriate for some companies to pay a levy, and then be expected to contribute to training in other ways (by allowing access to equipment, or donating raw materials).

Given this proviso, the imposition of a training levy upon industry would clearly ensure a greater contribution by industry and would certainly result in their evincing a greater interest in training as well.

CHAPTER 6: CONCLUSION

In Chapter 1 of this report, a typology was established indicating possible ways in which liaison might take place between industry and TAFE over use of facilities. As Chapter 4 has shown, many of these forms of co-operation are already practiced. Further, when the value of any form of liaison is examined, each instance demonstrates value in terms of the particular circumstances that has led to its being adopted.

However, this report was written in a climate where the emphasis is on seeking greater industry involvement in, and commitment to, vocational education and training. For this reason in particular, as well as on more the general grounds of relevance and effectiveness, it seemed likely that the following situations would be of interest:

a) industry owned equipment leased out-of-hours

b) industry owned equipment made available free out-of-hours

c) industry owned equipment lent on a short-term basis for 'real' work to be carried out

d) industry facilities used for teaching purposes with company staff as trainers

e) joint facilities, especially skills training centres and facilitator agencies

f) industry staff working in TAFE colleges on a paid or 'loan' basis.

Lease or loan of company equipment or staff (a-c, and f)

In relation to the first three of these options, the research undertaken suggests that opportunities for use of company owned equipment on a lease or loan basis must be limited.

There is little doubt that this is an approach that has been used - even with students using equipment during normal company work time. However, such use depends on the company being able to provide supervision while equipment is being used, or knowing that college staff can act competently in this role. In general, instances where this approach has been adopted involve the students undertaking 'real work' (repair of faulty equipment, working on a farm, etc), or some kind of fee paid to recompense for time lost (where students use company equipment during work time, under supervision).

Two factors limit the extent to which this approach is readily available - production needs, and safety. On the first point, student use of company machinery means - even where real work is being undertaken - that there is a loss of production. Most firms can only support such losses to a very limited extent. Further, where the equipment TAFE wants to use is more advanced (and expensive), the probability is far greater that firms will need to use the equipment more extensively, in order to recoup their own investment (and the example of the printing company requiring its machinery to be in use 24 hours a day, seven days a week, is a graphic one). Concern over productivity is heightened where student use of equipment might damage the machinery, leading to further production losses. Not surprisingly therefore, the degree of access to the equipment and to actual use, was found to be a direct function of the risk of damage.

The second issue is that of safety. Many machines have rigid safety requirements, which may be incorporated in union awards over usage. Safety considerations and the restrictions that these necessarily imply, limit access and will continue to do so in the future.

From the viewpoint of both industry and TAFE, use of company equipment on a lease or loan basis is a short term expedient only. The potential costs are great, and other strategies should be sought in the long term.

However, other opportunities for industry to interact with TAFE by supplying staff are afforded easily, without it would appear, conscious action by firms themselves. A most important element of this must be the continuation of a significant element of the teaching force comprised of part-time teachers recruited from industry. Companies do supply staff to assist in training, and often this is done so free of charge. It is essential that

these arrangements continue in the future. A most important element of this must be to continue having a significant element of the teaching force comprising part-time teachers, recruited from industry. Such people are abreast of current technology, and can play a particularly important role in the effective development and teaching of programs.

Industry owned training facilities (d & e)

A far more valuable approach is to encourage industry to establish training facilities that are accessible to TAFE. As the two options above suggest, this can be done in two ways -

- through industry having its own training facility, which can be used by TAFE on a paid basis, or through some kind of negotiated arrangement; or

- through the establishment of joint training facilities.

Both these approaches have seen considerable development. Many large companies have training facilities in-house, especially those working in the more technologically based areas, and in many cases these are available for TAFE use. Several instances were found of this, especially where a college had developed a long-term working relationship with that industry, and use of each others' facilities had become established practice.

More recently, many industries have seen the value in setting up training facilities for 'across the industry' use - especially where the individual enterprises are small, and in-house facilities unlikely. Often these turn out to be tripartite developments - involving industry, unions and government, with TAFE one part of the latter group. Industry skills centres have been established in all states, and many were examined in this study. As noted in the preceding chapter, they offer the basis for a long-term partnership between industry and TAFE that may be particularly rewarding.

In both cases, the significantly inhibiting factor is cost. Training facilities, and especially those related to high-technology equipment, are expensive, and their development has to be balanced against companies' concern to ensure profitability. Various approaches have been advocated to accommodate this concern, ranging from taxation incentives which apply when additional training machines are purchased (see Gallagher, op cit), to offsets against levies (either payroll tax, or a new training levy), an approach raised in the preceding chapter).

Equally important, however, is the willingness of industry to take up training as a central concern. One observation made by several people interviewed, in TAFE and in industry, is that there is a greater awareness of the importance of training now, compared with ten years ago. As such an awareness increases, and training becomes an established production cost - comparable with the cost of recouping capital investment in machines - so the concern over training facility costs will diminish. One of the effects of current Commonwealth Government concern over this issue is likely to be a greater appreciation of the truth of the observation that for most firms their major asset is their staff.

The final point to be made on this option, however, must be a reiteration of the importance of developing closer partnerships between industry and TAFE. While much interaction does take place, the scope for developing closer links is considerable. From a closer relationship a better appreciation of training needs and more effective methods of gaining access to required facilities will develop and which must be a priority for the future.

System level developments

Finally, a critical source of influence on TAFE liaison with industry comes from the attitude adopted by the top management of TAFE.

If the TAFE system is to increase industry commitment to training, it must do so by making itself more openly responsive to industry. A TAFE partnership with industry must be evident in the review and development of TAFE services as a whole, and this necessitates real industry involvement in long-term planning, both in relation to capital and recurrent programs.

The present system of industry representation on state-level councils or boards, and industry involvement in course planning and review goes part of the way to meeting this need. However, a greater role for industry should be encouraged. The Victorian Government's establishment of a State Training Board that combines the functions of the previous Industry Training Commission and TAFE Board is one approach. A further stage would be achieved by giving industry an opportunity to comment on matters outside of the curriculum, particularly the development and location of new colleges and extensions to facilities.

As long as industry remains an advisor to the system, so its commitment will be limited. As a stakeholder, industry will take the real interest that the future development of an effective vocational education system requires.

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APPENDIX

REPORT OF A PRELIMINARY STUDY FOR THE PROJECT:

"WAYS AND MEANS OF PROMOTING SHARED FACILITIES BETWEEN TAFE AND INDUSTRY IN WESTERN AUSTRALIA"

Dr A P Gallagher
Office of the Vice-Chancellor
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May 1987

This preliminary project was funded by the TAFE National Centre for Research and Development.

CONTENTS

ABSTRACT

In February 1987 Dr A P Gallagher agreed to undertake a preliminary study for the TAFE Division of the Western Australian Education Department into ways and means of promoting shared facilities between TAFE and industry in Western Australia. The report was to be ready by the end of April 1987.

The preliminary study, which included research into the scarce literature on sharing facilities and equipment, extended to recent reports on the role of TAFE and industry in responding to Australia's economic needs and visits to several TAFE colleges and industrial enterprises to discuss the ways whereby facilities and equipment were being shared. It was decided early in the project to set aside the general issue of facilities sharing as it was too diffuse. This allowed the study to focus on the important issue of the sharing of equipment. Because of the confined nature and comparatively small size of the industrial infrastructure in this State there were few examples found of expensive equipment being either leased, borrowed or time-shared between TAFE and industry.

This report contains recommendations concerning strategies which could be followed in the main project. Because of the national importance of this study, the principal recommendation is that the central research effort be relocated in Victoria where a sufficiently diverse manufacturing base exists to investigate both the practical problems of sharing equipment and the means of overcoming such difficulties. The second main recommendation is that the Western Australian TAFE Division remain as a significant stakeholder in the national project because this State is second to none in the promotion and success of its high-technology enterprises and there are distinct advantages in considering ways and means of promoting shared facilities in a post-industrial environment.

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RECOMMENDATIONS

1. Undertake the Project Without Delay.

   A national project be undertaken as soon as possible on ways and means of promoting shared equipment between TAFE and industry using funds recommended by the TAFE R&D Centre for the Western Australian based project.

2. Relocation of the Project.

   Because of the national importance of the study, the central research effort be relocated in Victoria where a sufficiently diverse manufacturing base exists to investigate both problems of sharing equipment costs and the means of overcoming such problems.

3. Future Western Australian Involvement

   Western Australia needs to remain a significant stakeholder in this project because of this State's success in high-technology enterprises. Western australian TAFE representation on the Steering Committee and data gathering in this State need to be a part of the project.

4. Structure of the Project

   A Steering Committee be formed representative of union, industry, government and TAFE to set Terms of Reference and advise on progress with the project. Such a committee requires national representation in its membership.

PART I

SOME BROADER PRINCIPLES GOVERNING EQUIPMENT SHARING

1.1 FORMS OF INTERACTION BETWEEN TAFE AND INDUSTRY

This brief analysis considers three main forms of interaction - equipment sharing, facilities sharing including skills training centres and facilitator agencies.

Equipment Sharing

There are two reasons why equipment sharing is important. First, in this era of rapid technological change, industrial and commercial organisations and tertiary institutions can overcome the problem of expensive equipment becoming obsolete before it is fully amortized by increasing its level of use.

Second, such sharing, particularly for TAFE institutions, can enable the purchase of equipment that may not otherwise be justified because of insufficient demand and the lack of financial resources. Donated equipment is not uncommon in WA TAFE Colleges and there are some examples of leasing equipment from both public and private industry. However, joint purchase and use of equipment is not in evidence, neither were any examples found of thought being given to doing this.

Facilities Sharing

The industrial and commercial sectors benefit from the use of on-campus facilities in TAFE colleges including libraries, computer centres, conference facilities, testing laboratories, museums and health centres. Many of these centres are provided free or at reduced cost as part of the service of a TAFE college to its region.

Reciprocal arrangements whereby TAFE students have access to industrial plant and commercial activities to 'observe' are well known but with the exception of indentured apprentices, TAFE students gaining on-the-job experience on industrial site equipment is far from commonplace. There is also little evidence of consideration being given to equipment sharing through TAFE teaching on company equipment by company staff, paid as part-time teachers and responsible to a TAFE college for their educational activities.

Skills Training Centres

A skills training centre is an area set aside by a commercial or industrial undertaking for training purposes rather than for regular production or maintenance work. There are examples of such centres in Victoria, in Britain and European countries.

In-plant training centres are sometimes called 'off-the-job' training centres although, strictly speaking, that term embraces a wider range of training arrangements including 'skill centres' of various forms. Skills centres can be run by government training agencies or by an association of employers or employees in an industry, or by the public education system (Dandenong College of TAFE) or welfare agencies.

Hunter (1981) distinguishes three types of skills training centres :

(1) An arrangement such as the aircraft industry whereby the entire training is carried out without the release of trainees to TAFE.

(2) Locating the centre within selected TAFE institutions where the appropriate industrial environment can be replicated (eg Food, Automotive and Hairdressing industries).

(3) More complex and sophisticated training can be carried out in in-plant centres with release of trainees to TAFE institutions to cover basic training (eg Metal Industry).

The Plastics Skills Centre is being established at Wembley TAFE lacks a marketplace setting. Some of its equipment is donated by industry. The remainder has been purchased or will be purchased by TAFE. As it stands the Plastics Skills Centre does not present a model of sharing equipment between TAFE and industry in order to share amortisation or indemnity costs. No current evidence was found that the skills training centre concept in this State provided a way of sharing such equipment costs between TAFE and industry.

Facilitator Agencies

A final major form of interaction through which equipment costs could be shared is by establishing companies to provide formal channels through which the resources of TAFE colleges can be made available to the community. In addition, these companies may administer inventions and innovations submitted by academic staff and students and also conduct vocationally-oriented courses, seminars and workshops.

At the TAFE level in this State, for example, a TAFE Training Advisory Service (TTAS) has been established. The TTAS is not seen as a research and development consultancy agency but rather as providing for short specialised courses whether within industry or TAFE, which are self-supporting or profitable to TAFE.

1.2 EXISTING COOPERATION BETWEEN TAFE AND INDUSTRY

There is extensive cooperation in the use of equipment between TAFE colleges and industry. For TAFE students and apprentices this takes the form of observational visits and work experience. Broader arrangements involve the lending or donation of equipment by industry to TAFE, and to a lesser extent, the lending of TAFE equipment to industry. This bartering arrangement is generally the result of the initiatives of individual trades instructors or heads of schools making contact and maintaining the goodwill of industry.

The two TAFE officers employed in the TAFE Training Advisory Service were asked about existing cooperation between TAFE and industry. They did not foresee much scope for the sharing of equipment between industry and TAFE on an extensive basis. They cited examples of current practices which ranged from loans of equipment to leasing arrangements. Neither saw much prospect of student/apprentices being encouraged to work on-site in industry in skills training centres partly because incentives did not exist to encourage industry to do this.and partly because of the need for enterprises to protect their ideas. In the absence of programs to update and upgrade technical teachers industrial and commercial skills, they were more enthusiastic about the possibility of TAFE teachers being involved in a bigger way in inhouse industrial training or TAFE providing special courses.

1.3 ISSUES INVOLVED IN IMPROVING INTERACTION

What follows are eight issues which need to be considered if a greater sharing of equipment between TAFE and industry is to take place. Any subsequent project on ways and means would need to incorporate strategies for discussion by the project team of these issues to decide on their relative importance. Any strategy would need to bring together industry, TAFE, unions and government if any real progress is to be made.

Costs

The extent to which a satisfactory agreement could be reached between both TAFE and industry/commerce on the sharing of the capital costs involved in purchasing equipment is dependent upon taxation incentives such as accelerated depreciation or import tax deductions on equipment, and the legal implications concerning use of equipment.

Legal Implications

Laws and regulations, e.g. indemnity, have an effect on stuoent activities in industrial facilities and on workers using equipment in a TAFE environment. Also, the question of government joint ownership of equipment and the subsequent question of profit and loss sharing between TAFE and industry using jointly owned equipment needs to be explored.

Taxation Incentives

It is claimed by the Department of Industry, Technology and Commerce and the Commonwealth Ministry of Science that the 150% taxation concession for industrial and commercial investment in research and development is beginning to have a positive effect. In Commonwealth Parliament, in November last year, the Minister for Science stated :

> Already it appears likely that private enterprise will double its R & D effort in real terms between 1981-82 and 1987-88 when the business sector is expected to spend about $1.1 billion on R & D. This is a good start, but we must do even better. In terms of our total research expenditure as a percentage of GDP we will have risen from about 1 per cent to 1.1 per cent and passed only one other country - Denmark - in the league table of OECD nations performing R & D. At present we are ahead only of New Zealand, Iceland, Spain, Portugal and Greece.

Despite these successes, which have involved universities and colleges, the use of taxation incentives to encourage the sharing of equipment between TAFE and industry seems to have been inadequately explored.

Course Objectives

Sharing equipment is dependent on the extent to which the use of commercial or industrial equipment will assist in achieving the objectives of particular TAFE courses. My initial impression is that TAFE lecturers see the need to transmit general understandings to students as of greater importance than enhancing actual operating skills on 'state-of-the-art' equipment. This is as it should be if they are to fulfil their prime educative function. Unless new cooperative learning arrangements are developed between education institutions and industrial and commercial organisations, then development of applied skills will fall continuously behind the state of the art.

Government Policies

State and Commonwealth government pre-employment and re-training policies as they apply to various funded training schemes, such as Traineeships, impact on industry and its willingness to share equipment. The inter-relationship of the functions of TAFE, industry and the State and Commonwealth Departments of Employment and Training need to be considered.

Commitment of Industry to Training

Policies supporting the use of equipment for training purposes differ between firms and according to economic circumstances. The Confederation of Australian Industry Industrial Council would need to be involved. Small firms in a volatile market are believed to be least likely to be willing to share equipment.

Union Policies

These vary between unions, States and occupations. If correctly and openly sought, union input can be a most positive contributory factor. It can never be ignored.

Restrictive concepts such as 'trades' and 'occupations' lead to demarcation and juristictional disputes. There is a need to broaden the base of skill formation to make it more appropriate to the continual learning development of people in industry.

Local Circumstances

This issue is concerned with geographic location, timetabling and other matters which vary between individual TAFE Colleges and their industrial/commercial links and settings. Obviously, some TAFE colleges are better placed to take advantage of equipment sharing with industry.

PART II

THE ECONOMIC SIGNIFICANCE OF EQUIPMENT SHARING

2.1 THE WIDER CONTEXT

Over a long period governmental, industrial and education enterprises in Australia have supported a substantial and sustained shift in training responsibility away from industry to publicly-funded institution based training in TAFE and in higher education. There are many observers who now believe that this movement has gone too far and has serious adverse consequences for improvement and renewal of the skill depth of the Australian labour force. As early as 1983 Ford had claimed that Australia was failing to develop adequate skills to meet the changing nature of industry, technology and organisations.

Since then, the evidence to support Ford's view has increased. For example, the February 1986 Report of the Economic Planning Advisory Council claims that inadequacies of equipment-based training in TAFE and higher education have retarded Australia's capacity to adapt to contemporary technologies.

In the last two years this issue has become of increasing concern to the Commonwealth Government, particularly as the movement of training responsibility to publicly-funded institutions has sharply increased the costs to the public sector for major equipment for training purposes. For example in June this year both the Australian Science and Technology Council (ASTEC) and the Technological Change Committee within ASTEC will be reporting to Government on the capacity of Australia's education system to meet the country's needs in industrial development and innovation and skills in the workplace especially in the manufacturing sector.

There is also widespread concern over of the the lack of capacity of TAFE to keep abreast of technological development in relation to equipment stocks. Over the next five to ten years the equipment provided during the last decade as part of the new Commonwealth-funded buildings, will need to be replaced.

The recent Commonwealth Government report on a Review of TAFE Funding observed that there was :

> probably no area with a greater potential for cooperation between education and industry than in the areas of access to equipment for teaching purposes. (Para 6.30)

The Committee went on to recommend that the CTEC should undertake a thorough review of means appropriate to improving TAFE's access to equipment for training purposes. The Committee believed that such a review should include an investigation of circumstances where simulation is educative and cost-effective, the scope for education and industry cooperation and measures necessary to promote cooperation.

Because of the national significance of this issue it is imperative that the proposed project on ways and means of promoting shared facilities between TAFE and industry have a national focus. If such a focus cannot be well-served by locating the main activities and research in Western Australia the project needs to be relocated.

2.2 WESTERN AUSTRALIA'S MANUFACTURING PROFILE

The strengths of Western Australia's manufacturing sector derive from the resource-based industries of mining and agriculture and from the servicing of the local, competitive consumer perishables market. Although in recent years Western Australian manufacturing has grown faster than elsewhere in Australia, only 10 percent or some 250 manufacturing establishments (June 1983 figures) employ in excess of fifty people and are small relative to Australian manufacturing firms generally. The value added by the manufacturing sector in Western Australia per head of population was $1560 in 1980-81, significantly below that of Victoria ($2,668), New South Wales ($2244) and South Australia $1992). Hence, manufacturing in Western Australia is not only small in absolute terms but in relative terms as well (Government of Western Australia : 1985).

However, Western Australian small firms enjoy many strengths. Most importantly, with considerable State Government encouragement, they provide an environment for entrepreneurs with ideas and skills which could become major stimulants of growth. As a consequence of both their own efforts and of State Government support, some Western Australian manufacturing industries have achieved considerable success in national and international markets. Notable examples include :

- Furniture manufacturing and wood products.
- Design and construction of small to medium-sized marine craft and components.
- Solar heating.
- Computer software and manufacture of selected hardware components.
- Engine technology and
- Alcoholic beverages.

State Government emphasis is mainly in areas of capital and technologically intensive industries which do not employ large numbers of people and do not provide extensive opportunity for training and exchange or sharing of equipment with TAFE. Interest in skills is normally restricted to traditional trade skills, technical skills and managerial/marketing skills. Little interest is taken in skill formation for the high-technology process workers. Western Australia's manufacturing profile therefore does not offer a great deal of scope for an investigation into equipment cost-sharing between TAFE and industry.

2.3 LINKS BETWEEN INDUSTRY, GOVERNMENT AND ACADEMIC INSTITUTIONS IN WESTERN AUSTRALIA

Late in 1986 the State Government's Science, Industry and Technology Committee provided a report comprising an overview of the extent of the present level of collaboration in Western Australia between tertiary education institutions and government departments in areas of technological development (SITCO : 1986). The report concluded that greater levels of industrially-related research and development were necessary to develop new and competitive industries in the State.

Unfortunately, there was little recorded in the report of TAFE/industry interaction and little by way of recommendations to support incentives in enhancing that interaction. It seems that TAFE was considered as either too difficult or too unimportant to be seriously analysed in terms of its industry and government links. However, the report does provide a methodology which could serve to gather information for a future TAFE project on ways and means of promoting shared facilities between TAFE and industry. This methodology is taken up again in Part III.

2.4 PERCEIVED TAFE PRIORITY FOR EQUIPMENT SHARING

On its submission for the 1988-90 triennium to the TAFE Council of the CTEC, the Western Australian TAFE Division requested continuation of Commonwealth assistance by means of special grants for equipment purchases. Through its assets register, which contains a list of equipment costing more than $200 and having a life expectancy of two or more years, the TAFE Division estimates the replacement cost, at 1984/85 levels, of its divisional stock of equipment as $50 million and the replacement cost of equipment more than ten years old as $17 million.

Although considerable financial assistance has been given by the Commonwealth for the purchase of equipment by Western Australian TAFE, most of the items purchased have cost less than $10,000 and many of them have been in the form of computer assisted learning equipment. Table I below shows some examples of the major items of equipment purchased. The information was obtained from the assets register.

TABLE I

EXAMPLES OF MAJOR ITEMS OF EQUIPMENT PURCHASED BY TAFE WITH COMMONWEALTH FUNDS DURING THE 1985-87 TRIENNIUM :

NAME OF EQUIPMENT	TAFE COLLEGE INVOLVED	COST
Brake Machine	Leederville	$54,800
Chromatograph Gas Unit	Mt Lawley	$42,800
Computer Graphic W/Station	Wembley	$30,900
Routing Machine	Leederville	$128,000
Scanner (Photographic)	Perth	$35,000
Shearing Machine	Leederville	$24,500
Spectrometers	Mt Lawley)	$13,000
	Fremantle)	to
	Carine)	$25,000

Apart from the Routing Machine and perhaps the Brake Machine, there appears to be little scope for major economies of scale in sharing with industry the cost of equipment of the kind listed, without the introduction of taxation incentives.

In its 1986-88 Corporate Plan the TAFE Division does not give a high priority to the issue of equipment replacement or building stronger links with industry in order to share or lease equipment. The closest objective in the Plan concerns retraining, viz :

> Objective 1.2
> To provide recurrent and retraining courses in all industrial and commercial vocational areas.
>
> 1.22
> During 1986 START centres to identify the demand for recurrent and retraining courses within their geographic areas of operation.

In terms of written evidence seen and testimony given there is little indication that the TAFE Division in Western Australia gives a high priority to the need to share equipment. The main reasons for this appear to relate to the industrial infrastructure in this State and the emphasis on proving short-term training courses to industry as a means of strengthening links.

2.5 PERCEIVED INDUSTRY PRIORITY FOR EQUIPMENT SHARING

As this is a preliminary project, it was not intended to undertake a broad penetration of individual enterprises but rather to use several key links as a means of testing impressions of the extent of industry.

TAFE equipment sharing and prospects for future sharing in this State. Contacts were made with:

- R.W. (Bob Greig, Manager, Industrial Relations Training Centre, confederation of australian Industry (CAI);
- Peter Shield, Patrol Craft Coordinator, Rockingham TAFE;
- Denver Davis, who provides a consultancy service to industry on ways and means of obtaining government subsidy;
- Ken Johnson, Manager, Orbital Engine Company.

The Industrial Relations Training Manager of CAI made four observations. First, there are considerable practical difficulties concerned with usage of equipment shared for industrial and training purposes. Second, it was his impression that TAFE made insufficient attempts to approach industry to use equipment. Third, many people in industry, fairly or unfairly, had a poor view of the capability and motivation of TAFE instructors; he suggested greater interchange of staff with industry might improve matters. Fourth, due to the complex network of government, union and industry authorities with a stake in the issue of equipment sharing, agreement on how to proceed would be very difficult to establish. He suggested the best way forward would be a pilot model to show how it would work.

Shield has close contact with Australian Shipbuilding Industries (ASI). Shield's interests relate mainly to crew training for patrol craft being built for Pacific Island countries by ASI. He saw little prospect of equipment sharing with ASI on a cost sharing basis in the short term.

Both Davis and Johnson came to similar conclusions as the author concerning relocation of the study in a larger manufacturing State. They were both optimistic that industry would share equipment costs if taxation incentives were involved - incentives such as accelerated depreciation or reduction on duty on imported machinery. They agreed that Western Australia should continue to be involved in the study. .

Both Davis and Johnson pointed out that to some extent taxation incentives would lead to only marginal improvements in equipment sharing. Some companies were already generous in their donation of equipment to TAFE. If taxation incentives were introduced such equipment could attract such benefits.

PART III

CONCLUSIONS AND RECOMMENDATIONS

3.1 PROPOSED STRATEGIES

Before considering proposed strategies it is necessary to reconsider what was the original basis for a research and development project on "Ways and Means of Promoting Shared Facilities Between TAFE and Industry in Western Australia".

The project was based on the need to respond to government encouragement to TAFE to engage in commercially profitable enterprises and to defray the increasing cost to TAFE of replacing and maintaining the equipment required for training purposes. The aim was to investigate and briefly to describe current circumstances and constraints associated with sharing of facilities and equipment between TAFE and industry in Western Australia and to discuss options which might lead to improvements.

Early in this preliminary study it was decided to set aside the general issue of facilities sharing as it was too diffuse. It then became evident that the project might not be as well suited to Western Australia as it would to a more densely populated State. It was discovered through examination of the Western Australian TAFE Assets Register that there were few examples of expensive equipment being either leased, borrowed on time-shared between TAFE and industry. Also the confined nature and comparatively small size of the manufacturing sector in this State limited the possibility of promoting the sharing of equipment.

The magnitude of the problem of the cost of equipment to TAFE systems in every State and the interest of TAFE Directors in the project make necessary a reconsidered approach to the original proposal.

Relocating the Project

It is considered that Victoria has the necessary interest in this project and the kind of manufacturing infrastructure needed to form a more fruitful basis for exploring ways and means of sharing equipment costs between TAFE and industry. Preliminary discussions with officials from the Victoria TAFE Board have indicated they are very interested in undertaking the project.

Relocation can take place with little inconvenience and with a minimal loss of expectation. Because a preliminary project was undertaken with a small advisory group, representatives from union, industrial or government organisations in this State have not yet established a stake in the project. A relocation will allow Western Australian TAFE to remain an active participant. Because of this States distinctive high-technology profile there are advantages in considering ways and means of sharing equipment in post-industrial enterprises.

Establishing a Steering Committee

Section 1.3 of this report outlined eight issues which need to be considered to facilitate sharing of equipment between TAFE and industry. A Steering Committee, working with the Project Director needs to consider Terms of Reference for the project in the light of those eight issues.

It is suggested that such a committee comprise eight persons (including the project director) and that the composition of the committee be decided by the Victorian TAFE Board in conjunction with the TAFE Research and Development Centre, Western Australian TAFE and the TAFE Council. It is also suggested that the seven persons selected be a balanced representation of TAFE union, industry, and State and Commonwealth Government interests and that three of the seven be chosen for their knowledge of industry and TAFE in Victoria, and that at least one of the remaining three be from Western Australia. The costs of the interstate members of the Steering Committee, where necessary, would need to be met from project funds.

It is important that a Steering Committee of sufficient status be established, in conjunction with the TAFE Council. The recommendations flowing from the project can then be stated to the TAFE Council with some weight.

Methodology

Having set the Terms of Reference, a Research Officer could commence work. Such a person would be needed for about 6 to 8 months at an estimated cost of between $20,000 to $28,000.

A literature search for this preliminary project yielded little substantive material That which has been collected has been summarised and provided to WA TAFE. A more extensive search of overseas literature by the Research Officer may provide some more useful material, particularly after the terms of reference have been set and more specific points of reference can be made.

Using the terms of reference as a guide, it is suggested that the Research Officer conduct interviews, either face-to-face or if that is not practicable, by telephone, with approximately 100 people chosen from Industry, relevant Government Agencies and TAFE. To provide a national character, interviews with people in Western Australia are a necessary part of the project. The Research Officer would be supervised by the Project Director in this task and monthly reports made to the Steering Committee. Perceptions of the three groups will be obtained and these, together with any further discoveries from the literature search, will from the bases for the report and its recommendations.

3.2 RECOMMENDATIONS

There are strong reasons for pursuing this project. New cooperative learning arrangements between industry and TAFE are necessary to ensure the supply of skilled labour. Australia urgently needs to improve exports of manufactured goods. The inadequacies in equipment-based training in TAFE are likely to worsen as the Commonwealth and State Governments fall behind in their attempts to meet sharp increases in costs. The Review of TAFE Funding Committee has recommended that CTEC undertake a thorough review of the means appropriate to improving TAFE's access to equipment for training purposes. It is recommended therefore, that :

> A national project be undertaken as soon as possible on ways and means of promoting shared equipment between TAFE and industry using funds recommended by the TAFE R & D Centre for the Western Australian-based project on this issue.

Relocation of the Project

The Victorian TAFE Board is willing to undertake the project and Western Australian TAFE could remain an active participant. Victoria's extensive restructuring of light manufacturing industries and its education policies based on plans for future developments of industries requiring a highly skilled workforce make it a very suitable State in which to relocate the project.

It is recommended that :

> Because of the national importance of this study, the central research effort be relocated in Victoria where a sufficiently diverse manufacturing base exists to investigate both problems of sharing equipment costs and the means of overcoming such problems.

Future Western Australian Involvement

Because of Western Australia's high technology emphasis in industry it has a very useful place in a project of this kind. Western Australian participation needs to be assured through membership of the Steering Committee and through gathering a substantial part of the data in this State. It is recommended that :

Western Australia remain a significant stakeholder in this project because of this State's success in high-technology enterprises. Western Australian TAFE representation on the Steering Committee and data gathering in this State need to be a part of the project.

Structure of the Project

To emphasise its national character and importance, the project needs to be undertaken with advice from a Steering Committee whose membership is chosen by the Victorian TAFE Board in cooperation with the TAFE Council, the TAFE R & D Centre and Western Australian TAFE. The Steering Committee needs a balance representation from union, industry, government and TAFE. The project needs clear terms of reference through which the Project Director can obtain information from industry, TAFE and government people on the ways and means of sharing equipment costs between TAFE and industry.

It is recommended that :

A Steering Committee be formed representative of union, industry government and TAFE to set Terms of Reference and advise on progress with the project. Such a Committee requires national representation in its membership.

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