Pathways to Quality Tertiary Education: Experiences, Strategies and Systems in Swinburne University of Technology

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Abstract

Swinburne University of Technology (SUT), in response to the Commonwealth and State Governments’ initiatives to promote development of pathways linking both tertiary education sectors, has developed a systematic and holistic approach to curriculum development across the sectors so as to improve the quality of TAFE to higher education pathways. The purpose of this paper is to review the experiences, strategies and systems of the Swinburne University of Technology TAFE/Higher Education Pathways Program from the perspective of two key stakeholders, namely the students and academic staff. A Questionnaire Survey which explores the perception of students and academic staff concerning the quality of course maintenance, staff development, and training programs was conducted in 1992 at the beginning of the Pathways Project. The major findings of the exploratory survey were as follows:

- Most of the TAFE to higher education transfer students were satisfied with the quality of access, equity and effectiveness of the Swinburne University of Technology exemptions system.
- Academic staff recognised the need to establish bridging programs across to maintain the quality of outcomes of TAFE credit transfer students owing to the differing academic abilities and skills achieved from TAFE.
- Most respondents felt that curriculum should be integrated across the two sectors of Swinburne University of Technology and review should be undertaken periodically so that quality of delivery can be maintained and further enhanced.
- Academic staff believed that the production of independent learning material and technological resources should assist in enhancing the quality of educational program.

The paper concludes by recommending post-measurement of quantitative and qualitative domains of the pathways program upon subsequent refinement of the exploratory survey instrument and the implementation of the revised articulated curricula in most disciplines during 1993 and 1994. In addition, longer-term monitoring and evaluation strategies are suggested which will effectively form part of University policy and procedures, rather than being as arrangements pertinent only to the life of the Pathways project.

Introduction

The restructuring of tertiary education in Australia, as triggered off in 1987 by the release of the Commonwealth Government document “Higher Education, A Policy Discussion Paper’, or the Green Paper as it is commonly known, had targeted general inter-related key areas for reform. Aside from establishing the Unified National System (UNS) which eliminated the binary system of higher education, emphasis was placed on the provision of greater access and equity to higher education through a uniform system of credit transfer and articulation of academic programs. Credit transfer issues have become one of the main foci in the national reform agenda of tertiary education since the release of the White Paper in 1988. Interest in these issues, however, did not confine itself only to the government and the tertiary education sector (consisting of TAFE and higher education) but has pervaded the employer groups, professional and industrial associations, and private educational and training institutions.
Government-sponsored discussion papers were made available and seminars and conferences were held to discuss these issues and to develop a national approach so that credit transfers can be made both efficient and effective. The first annual report (November 1992) of the National Board of Employment, education and Training (NBEET) has provided an excellent and succinct account of credit transfer and its related issues. Although the tertiary education and training sectors have, since 1990, begun to focus more on a systematic approach to credit transfer, industry groups continued to voice concerns about the unsatisfactory practice of credit transfers within and between tertiary education institutions to the first Consultative Forum held on 11 March 1992 at Melbourne. The industry groups argued that the “new industrial award providing better career pathways were based on the assumption that efficient credit transfer arrangements would be in place, within and between sectors” and educational institutions were generally reluctant to implement effective credit transfer arrangements (First Annual Report of NBEET, 1992, p. 6).

The Swinburne Context

The Swinburne University of Technology (SUT), as a member of the unified national system and being a multi-sectoral institution for many decades, is one of the few tertiary education institutions which, for some years now, has facilitated credit transfer to higher education. Hence, SUT is well aware of the context in which divergent sectoral priorities and discrete systems of course development, accreditation and funding have conspired to constrain the achievement of effective credit transfer arrangements and articulation.

In response to the Commonwealth and State Government’s initiatives to promote the development of pathways linking both tertiary education sectors, SUT has developed a systematic and holistic approach to curriculum development across the sectors so as to improve the TAFE/Higher Education pathways. Several strategic priorities have been established within this integrated pathways approach, namely:

- enhanced credit transfer and articulation arrangements between TAFE and higher education;
- development of independent learning systems including computer based learning initiatives, tutored video institution and other relevant educational technologies;
- provision of staff development programs based on agreed staff development plans and priorities to meet Swinburne’s staffing needs over the next decade;
- enhancement of electronic communication between campuses and computer networking;
- implementation of an integrated management information system (TAFE/Higher Education Pathways, 1992, p. 4).

To implement the TAFE/Higher Education Pathway strategies, SUT submitted a proposal to the Victorian State government in early 1992 for funding its two-year (1992-93) TAFE/Higher Education Pathways Project (THEPP) which was aimed at providing a swift and dramatic improvement in the availability of intersectoral pathways while preserving the specific purposes of each sector. Anticipated project outcomes will be the expansion of articulated places within SUT from 67 in 1991 to 420 in 1994 and the development of a systematic comprehensive curriculum model which will both challenge and enable other higher education and TAFE institutions to achieve similar results. SUT was successful in obtaining a funding of one million dollars for the project and the Pathways Project Agreement was signed in July 1992.

An important aspect of the THEPP is the ongoing monitoring and evaluation process which will provide data to assist in fine-tuning the credit transfer arrangements and provide feedback to both students and staff in both sectors. The process also ensures the proper management of the THEPP at all levels of institutional activity. This paper focuses on the issue of monitoring and evaluation.
Methodology

The Evaluation Process

The aim of the monitoring and evaluation process is two-fold:
- to obtain data that ‘assist in fine-tuning the curriculum; and
- to provide feedback to both students and staff in both sectors’ (TAFE/Higher Education Pathways, 1992, p. 11).

To achieve this aim, the following monitoring and evaluation functions are to be undertaken:
- capturing of data on credits granted to students articulating between sectors;
- development of software to track the performance of these students;
- development of survey instruments to ascertain student and staff perceptions [of the credit transfer and course exemptions processes] ibid p.12).

Monitoring and evaluation will be carried out in two stages. The first stage involves two processes, namely:
- pre-measurements of the initial phase of implementation of the integrated curriculum framework using the software that has been developed to track student progress arid credit transfers; and
- the conduct of a perception survey on student and academic staff concerning credit transfer and course exemption processes.

Aims and Objectives

The two major aims of monitoring and evaluating the TAFE/Higher Education Pathways program are to obtain data that assist in fine-tuning the curriculum, and to provide feedback to both students and staff in both the sectors. To achieve these two aims, the following monitoring and evaluation functions were undertaken:
- To capture data on credits granted to students articulating between the two sectors;
- To develop a software program to track the performance of these students; and
- To develop survey instruments to explore student and staff perceptions of the credit transfer and exemptions given, as well as of the pathways project itself.

Key Issues in the Evaluation Process

There is generally a dearth of published literature concerning the progress and performance of former TAFE students who have proceeded to university study (Parkinson, 1985 and Lewis, 1991). In SUT, the demand for degree enrolment from TAFE graduates has increased over the years owing to the implementation of the relatively well publicised definite exemptions for TAFE students. It was anticipated that in 1994, about 200 TAFE graduates would contemplate doing a Bachelor’s degree in the Business Faculty alone. Aside from Parkinson’s and Lewis’ studies, little about how these TAFE graduates progress through their degree studies, how they perceive the existing credit transfer arrangements and articulation, and how they compare with those who entered with HSC/VCE qualification. Quite often the following questions have been raised by both academic staff and planners but seldom pursued for their concrete evidence via research:

- Did the granting of exemption for some earlier units in the degree cause problems later in the course?
- Did the students perform well in some later units for which they have not been granted exemptions?
- How academically well prepared were the TAFE graduates for degree studies or did they have to take remedial courses?
- How did the transfer students perform in the Bachelor’s program in terms of units completed and grade point average?
- Did performance vary by demographic characteristics or other factors such as remediation status?
How long did it take for the transfer student to complete their degree program and did remedial students take longer to graduate?

What are the attributes of a successful transfer student?

All these questions are important in the monitoring and evaluation exercise for they provide essential information for enhancing the efficiency and effectiveness of the existing credit transfer and articulation arrangements.

Evaluation Mythology

The monitoring and evaluation exercise has two major components, namely

- The quantitative analysis of credit transfer and articulation which entails the following tasks:
  a. the capturing of data on credit granted to students transferring from TAFE to Higher Education, and
  b. developing software to track the performance of students.

- The qualitative analysis of credit transfer arrangements and articulation as obtained from the perception surveys of
  a. undergraduates who have enrolled in a Bachelor’s degree program on the basis of their TAFE qualification and
  b. full-time academic staff of differing profiles and faculty affiliations.

Credit Transfer and Articulation: A Quantitative Analysis

The purpose of this section is to detail the pre-measurements made in 1992 with respect to the quantitative dimensions as mentioned.

Comparison of Progress Between TAFE and School Leavers

Table 1 compares the progress between TAFE and school leaver cohorts for 1991/1992. It should be noted that the number of students with a TAFE background enrolled in Design (12) and Applied Science (16) is relatively small and hence care should be exercised in the interpretation of results of these program analyses. This table reveals, for example, that 81.5% of Business TAFE students re-enrolled in 1992, 2.5% graduated and 16.0 discontinued their business program. These figures compare reasonably with the school leaver population enrolled in the undergraduate business programs. Statistical testing indicates that TAFE progression rate is equal to that of the school leaver population for Swinburne University of Technology Business program. This conclusion is also true of all faculties but not for the School of Design. This is because the latter had a relatively small number of students, thus making it difficult to draw valid conclusions. With the School of Design, a relatively large number of students enter with a TAFE background, but specially with no credit for TAFE studies.

<table>
<thead>
<tr>
<th>Faculty or School</th>
<th>Continuing</th>
<th>TAFE Completion</th>
<th>Attrition</th>
<th>Continuing</th>
<th>School-leavers Completion</th>
<th>Attrition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business</td>
<td>81.5</td>
<td>2.5</td>
<td>16.0</td>
<td>82.5</td>
<td>1.1</td>
<td>16.4</td>
</tr>
<tr>
<td>Engineering</td>
<td>72.2</td>
<td>0.0</td>
<td>27.8</td>
<td>77.1</td>
<td>0.0</td>
<td>22.9</td>
</tr>
<tr>
<td>Design</td>
<td>100.0</td>
<td>0.0</td>
<td>0.0</td>
<td>64.5</td>
<td>6.5</td>
<td>29.0</td>
</tr>
<tr>
<td>Applied Science</td>
<td>75.0</td>
<td>6.3</td>
<td>18.7</td>
<td>81.8</td>
<td>3.0</td>
<td>17.9</td>
</tr>
<tr>
<td>Arts</td>
<td>53.9</td>
<td>0.0</td>
<td>46.1</td>
<td>70.5</td>
<td>0.0</td>
<td>29.5</td>
</tr>
<tr>
<td>Swinburne University</td>
<td>74.2</td>
<td>1.5</td>
<td>24.3</td>
<td>78.6</td>
<td>6.0</td>
<td>20.8</td>
</tr>
</tbody>
</table>
This suite of programs also allows us to compute whether the TAFE students have completed their program in minimum time, minimum time plus one year, and so on. However, since the cohort was taken over one year only no meaningful results were obtained. It is expected that in future, once the 1991 cohort has had sufficient time for graduation, meaningful results will be obtained from such an analysis and provided to faculties so that they can more effectively monitor the progress of their TAFE students relative to school leaver and other populations.

Credit Transfer and Exemptions

1. Business Studies

In 1992 there were 114 Swinburne TAFE division students who had transferred to the Bachelor of Business Program in the higher education sector. Of these students 34% had not been granted any credits, 49% had been granted credits up to 25% and 17% had been granted credits of more than 25% of the Bachelor of Business Program. The average proportion of credits granted to such students was 12.5%.

In 1992 there were 171 Bachelor of Business students who had previously attended a non-Swinburne TAFE college. Of these students, 61% were not granted any credit, 29% were granted credits of up to 25% and 10% were granted credit in excess of 25%. The mean proportion of credits granted to such students was 6.8% which is approximately half the credit granted to students transferring from Swinburne TAFE division.

2. Applied Science

In 1992 there were 24 Swinburne TAFE Division students who had transferred to the Bachelor of Applied Science program in the higher education sector. Due to the very small sample size, great care should be exercised in drawing conclusions from this data. However, the opportunity exists to establish base figures against which future information can be compared to analyse the emerging trends. Of these 24 students, 87.5% had not been granted any credits whilst 12.5% were granted 35% credit from the Bachelor of Applied Science program. The overall average proportion of credits granted to such students was 4.4%.

In 1992 there were 29 Bachelor of Applied Science students who had previously attended a non-Swinburne TAFE College. Of these students, 96.5% were not given any credit for prior TAFE learning whilst 3.5% (one student) was granted ~% credit Again the sample size is far too low to draw any meaningful conclusion.

3. Arts

In 1992 there were 17 Swinburne TAFE Division students who had transferred to the Bachelor of Arts program. Due to the very small sample size, as per Applied Science, great care should be exercised in drawing inferences from this data. However, over time this baseline statistics should assist in revealing future trends in TAFE to higher education credit transfer with respect to the Bachelor of Arts program. In 1992, none of these 17 students was granted any credit as at the reference date of 31 March for prior TAFE studies.

In 1992 there were 82 Bachelor of Arts students who had previously attended a non-Swinburne TAFE College. Of these students, 90.2% were not granted any credit for prior TAFE learning, 6.1% were awarded up to 25% credit and 3.7% with more than 25% credit from the undergraduate Arts program. The mean proportion of credits granted to such students was 2.3%.

4. Engineering

In 1992 there were 17 Swinburne TAFE Division students who had transferred to the Bachelor of Engineering program. Again, due to the relatively small sample size, great care should be exercised in interpreting this data. However, as suggested before, this baseline information should assist in monitoring future trends in Engineering credit transfer and TAFE articulation. Of these 17 students, 52.9% had not
been granted any credit whilst 47.1% were granted credit for up to 25% of the Bachelor of Engineering program. The overall average proportion of credits given to such students was 4.0%.

In 1992, there were 58 Bachelor of Engineering students who had previously attended a non-Swinburne TAFE College. Of these students, 86.2% were not given any credit for prior TAFE studies and 13.8% were granted credit of up to 25% of the higher education program. The mean credit given to such students was 1.7%.

Relative Performance of Transfer Students

The Grade Point Average (GPA), is an internationally recognised measure of performance of students in academic programs and is used to assess the relative performance of TAFE credit transfer students in the study. The GPA is operationally defined as follows:

\[
GPA = \frac{\sum S_i}{\sum i}
\]

where \( S_i \) = grade score for the \( i \)th subject.

The table below shows the grade and grade scores for Swinburne’s higher education sector.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher distinction</td>
<td>4</td>
</tr>
<tr>
<td>Distinction</td>
<td>3</td>
</tr>
<tr>
<td>Credit</td>
<td>2</td>
</tr>
<tr>
<td>Pass</td>
<td>1</td>
</tr>
<tr>
<td>Other Pass</td>
<td>0</td>
</tr>
<tr>
<td>Fail</td>
<td>-3</td>
</tr>
</tbody>
</table>

Ideally, the calculation of the GPA should note that not all subjects are weighted equally. In such a scheme, subjects should be weighted according to the EFTSU weighting assigned to them. Unfortunately, such data were not readily available and hence could not be incorporated into the GPA measure. However, this may have been more of a problem in some faculties (example, Engineering) than others (example, Business and Arts).

The analysis concerns commencing students only. The data on admissions criterion were currently captured within Swinburne in respect of commencing students, as required by DEET. This means that at present (and until such time recommendations are implemented with the new MIS system) comparative analysis of ‘TAFE’ and ‘School leavers’ GPA of commencing students only may be undertaken.

1. Business

The mean GPA for Swinburne’s TAFE students who have commenced the Bachelor of Business program in 1992 was 1.44 whilst the corresponding figure for school leavers was 1.08. This difference in mean GPA is statistically significant (\( t=2.04, v=296, p<0.05 \)), thus indicating that the TAFE students were able to perform better that the school leavers in the same program. However, clearly this performance indicator should be continuously monitored to ascertain whether there is a consistent trend.

A similar comparison was made between other TAFE College students entering the Bachelor of Business program in 1992 with school leaver population. It was found that the mean GPA for the TAFE students was 1.28, which is not significantly different from the average performance of the corresponding school leavers. This allows the inference that non-Swinburne TAFE students perform equally as well as school leavers in the Bachelor of Business program.
2. Applied Science

The mean GPA for Swinburne’s TAFE students who commenced the Bachelor of Applied Science program in 1992 was 1.10 (n=10) whilst the corresponding figure for school leavers was 1.35 (n=241). Due to the small sample size of the former, no valid statistical comparisons can be drawn. School leavers, nonetheless, were 23% higher than Swinburne’s TAFE articulated students in the mean GPA. This difference needs to be statistically tested when a proper sample can be drawn. Similarly, the sample size of other TAFE commencing Science students (n=5) was too small to draw any valid conclusions; the mean GPA for these students was 0.33.

3. Arts

The mean GPA for Swinburne’s TAFE students who commenced the Bachelor of Arts program in 1992 was 1.08 (n=8). The corresponding figure for school leavers was 1.14 (n=139) and for students with other TAFE background was 1.64 (n=14). Again the TAFE sample sizes were relatively small but the indicative results showed that other TAFE students seemed to perform better than the school leavers who in turn were slightly better than TAFE students.

4. Engineering

Mean GPA analysis of TAFE commencing students for 1992 in the Bachelor of Engineering Program was not possible due to the very low sample size (zero for Swinburne’s TAFE Division and only one for other TAFE).

This may reflect one or more of the following factors:

- inaccuracy in the students database due to the previously mentioned factors.
- examination results may not have been entered for the first semester Engineering students by August/September 1992 when the file was created for this analysis.
- the genuinely low numbers of commencing TAFE credit transfer students in the Bachelor of Engineering program in 1992.

In any event, the software exists to monitor this variable in future years when increasing numbers of TAFE to higher education articulated students are expected to enrol in the Bachelor of Engineering program.

Summary

This study suggests that the TAFE students progress at the same rate as school leavers and that the attrition rate for the two groups is approximately equal. Such a finding is important in that it suggests that under current admissions policies and practices of Faculties, TAFE cohort’s performance in terms of student progression rates is at least equal to that of school leavers. This comparative analysis needs to be repeated, particularly after the pathways program has been implemented by SUT, so that the pre-measures can be compared with post-measure to gauge the impact of the articulated curricula.

The average proportion of course for which credits have been granted to TAFE students ranged from zero (Arts-Swinburne TAFE students) to 12.5% for Bachelor Business students transferring from Swinburne’s TAFE Division. With the advent of TAFE to Higher Education articulation program at SUT, the proportion of credits given to such student is expected to increase in the future. The rate of the increase needs to be monitored in the future with the undertaking of post-measures of the appropriate variables.

The analysis of the performance of students in terms of examination results suggest that, on the whole, TAFE students’ GPA is equal to that of school leavers. Again this provides some confidence in the current admissions policies of Swinburne’s Faculties concerning the entry of TAFE credit transfer students. It will
be necessary, however, to undertake post-measures in this area in order to monitor the progressive implementation of the TAFE to Higher Education pathways program.

Credit Transfer and Course Exemptions

The purpose of this section is to present the views of students and academic staff concerning their experience with the credit transfer and course exemption arrangements at SUT up to 1992. The perceived observations of the respondents will assist SUT in developing a more efficient and effective system of credit transfer and exemption arrangements via the design and delivery of staff development and training required to effectively support the pathways which SUT is presently undertaking; this in turn will lead to quality outcomes in terms of TAFE to Higher Education articulation. In this summary, the findings relating to students and staff will be presented separately.

Students’ Perception

a) Application for exemptions

- The course adviser is the key person students relied on for providing information on credit transfer and exemptions.

- TAFE graduates granted exemptions were mainly Associate Diploma or Certificate holders and have completed at least 94% of their TAFE course.

- Those granted exemptions and who had problems in their degree studies believed they were caused by the later degree subjects assuming knowledge that they had not covered in TAFE.

b) Satisfaction with existing exemption system

Most expressed satisfaction with the access, equity and effectiveness of the exemption system, though attention should be paid equally to the higher proportion of respondents who have chosen to remain neutral to the response items.

c) Relationships of satisfaction levels and student profile

- Younger students were more satisfied with the exemption system than older students (those above 35 years of age) but the ‘neutral’ or middle position dominated for all age cohorts.

- Higher level of satisfaction was found in the Associate Diploma and Certificate holders that other categories of TAFE qualification.

- Students enrolled from 1990 onwards were more satisfied with the system than those enrolled prior to 1990. Attention should also be paid to the relatively high proportion of ‘neutral’ category.

- Students granted exemptions were usually more satisfied with the system than those who have not and the latter were generally ‘neutral’ to the response items.

Academic staff’s perception:

a) Course exemptions

- The statement “The criteria for subject exemptions should be standardised for all departments” received a fair share of agreement and disagreement from staff. There were those who perceived that standardisation was inappropriate owing to differences in course content, learning objectives and assessment while others advocated consistency and uniformity of the exemption system. However, the latter view was time main focus of the Commonwealth government’s drive to establish a national system of credit transfer.
Majority of the staff agreed that “there is confusion as to how exemptions are granted by each department”. This view was shared by the students.

The ‘neutral’ position dominated in response to the statement. “The present system is efficient and effective.” However, more of the staff disagreed than agreed with the statement, implying that the system needs to be improved.

There is overwhelming support for collaboration with TAFE.

Staff in general were against giving advice on exemptions to students. They recommended a specialist be assigned to each department of the task.

Most of the staff remained neutral concerning the statement that “The sequencing of course meant that students would have difficulty in choosing subjects”. However, nine of the staff disagreed then agreed with the statement.

b) Relationship of course exemption

A brief description of the relationships between the six items relating to staff perception of the existing exemption arrangements and staff profile has been undertaken in another sub section.

It is unnecessary to summarise the description again. However, statistical testing using the chi-squared statistic did not indicate any significant relationships between the levels of agreement with the six perception items and the characteristics of the staff profile.

c) Perception of current transfer arrangements

Only half of the staff were aware of the TAFE credit transfer students. This was partly because more than a third of the staff had no dealings with them.

Staff were overwhelmingly supportive of collaboration with TAFE for developing an effective credit transfer degree program.

Staff agreed that the degree course requires different academic abilities and skills from TAFE.

Most staff agreed that a bridging or redemption program should be in place to assist TAFE students to adjust better to degree studies.

Half of the staff agreed that more resources are required in degree programs with credit transfer students so as to improve the teaching and learning environments.

Staff in general agreed that access to study skills and counselling services should be readily available to credit transfer students.

About one third of the staff were either for, against or remained neutral towards the statement that “Staff development to update teaching skills and student counselling is necessary for developing a successful credit transfer program.’

Staff strongly agreed that the increased staff workload and research demands make it difficult for them to be accessible to students.

80% of the staff remained neutral to the statement that “students are generally happy with the articulated program.”
Preparation for Degree Studies
Perception of Academic Staff

83% of the staff responded to the three items which gauged their perception of the credit transfer students in terms of progress in their studies. Table 3 shows the percentage distribution of staff responses to each of the items and it is discussed as follows:

Item 1: “Students who have been granted credits generally progress in their course just as well as other categories of students.”

Though 43% agreed with the statement, quite a percentage remained neutral (35%). Only 23% disagreed. The relatively high neutral responses corresponded with the 34% of staff who had no experience in teaching or awareness of credit transfer students. As remarked by one staff member quoted verbatim “Cannot really comment. I have not taught a credit transfer student from TAFE sector. I would assume that if TAFE course is of a sufficient standard then that student may not experience difficulties.” Then another comment was that the staff was not sufficiently aware of who is who in any classes to usefully comment on the item, or certain departments, like Psychology, have no specific exemptions to be granted. Other comments made by staff relating to Item 1, as listed below, should provide a clearer picture for the pattern of responses as tabled:

- Academically well prepared students or those who have fulfilled the entry requirements will cope with their studies, irrespective of their background, while the weaker students tend to fall by the wayside. Furthermore, students were not only admitted to courses and granted credits if they have a good academic records in their TAFE course (at least average performance or better a credit). According to comments from staff, these students perform as well or better than normal entry student and much better than special entry students.

- “Credit transfer students who are marginal do tend to suffer in our degree program. A minority of credit transfer students tend to succeed quite well mainly because of their motivation and hard work. A number have severe difficulty meeting the requirements of the degree studies. They do appear to lack the background of knowledge provided in the first year degree units.”

- Many TAFE students appear to be successful and the problems that they do have are due to the part-time nature of their studies.

Item 2: “Students who have been granted credits are more likely to require pastoral care.

Most of the staff (41%) took a neutral stance. However a relatively higher proportion of staff disagreed (32%) with the statement than agreed (28%). Analysis of comments from staff has revealed the following observations:

- TAFE courses which are technique-oriented differed vastly from the conceptually-based courses at University. Thus, it is to be expected that some TAFE students cannot make the transition to writing essays, for example in accounting, when their prior learning is based on technical skills. Thus bridging courses are very important.

- TAFE students are generally weak in mathematics and physics, and this caused difficulties in later years. Hence, they do need pastoral care. Overall, it depends on the level at which students granted entry have been ‘vetted’.

- If credits are granted to exceptional TAFE students (and there are plenty of those), then their performance at University level is on par with other students and pastoral care is not refined.

Item 3: “Students who have been granted credits generally lack the pre-requisite knowledge and abilities for degree studies.”
Again there is a high proportion of staff who opted for the veridical (35%); 37% of the staff disagreed while 28% agreed with the statement. According to some staff members, the biggest problem is the style of teaching and depth of topic concerned and the requirements of assignments of TAFE students versus university students. TAFE students also tend to he weaker academically. As observed by some staff, “iii some ways the TAFE students think they have covered much of the material previously and possibly feel they do not have to work so hard. However, there seem to be two separate factors operating

a. “articulated students readily learn factual material”; and

b. “they have difficulty in applying concepts and coping with them.” This observation implies the necessity to establish collaboration between TAFE and Higher Education as is currently being implemented by the TAFE-Higher Education Pathways Project. Finally, one staff member expressed the concern that many of the TAFE students “have been seriously deficient in particular areas of the course and in practical skills. This makes them a danger to themselves and other people in the laboratory.”

Table 3: Perception of Credit Transfer Students

<table>
<thead>
<tr>
<th>Perception items</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students granted credits generally progress in their course just as well as other students</td>
<td>6</td>
<td>37</td>
<td>35</td>
<td>6</td>
<td>-</td>
<td>54</td>
</tr>
<tr>
<td>Students granted credits are more likely to require pastoral care</td>
<td>6</td>
<td>22</td>
<td>41</td>
<td>-</td>
<td>-</td>
<td>54</td>
</tr>
<tr>
<td>Students granted credits generally lack pre-requisite knowledge and abilities for degree studies</td>
<td>6</td>
<td>22</td>
<td>35</td>
<td>4</td>
<td>-</td>
<td>54</td>
</tr>
</tbody>
</table>

Conclusions

Restatement of the research problem

Several key areas of the articulated program were defined for staff to make suggestions as to the future direction SUT should take in enhancing its program. The suggestions made by staff in these key areas are described below under the following headings:

1. Credit transfer and course exemption arrangements

Staff have suggested the following:

a. Uniformity and consistency in the arrangements, especially regarding the criteria for subject exemptions in the various courses. Standardisation of procedures is essential so that students and staff are clear about the policy and practice. For example, “a student should be given a credit for a particular subject where that subject matches a similar subject in the degree course in terms of syllabus and assessment.”

b. Continuous monitoring of the arrangements so that access and equity procedures are not violated and the integrity of the course can be maintained.

c. Need to put in place structures that provide a smooth transition from TAFE to University such as matching TAFE subjects to degree units. The courses should be carefully designed, monitored and evaluated frequently so that students can be provided with a base which will enable them to succeed in their hater degree units. As indicated by a staff, “Perhaps the most logical arrangement would be for articulating students to be granted exemptions from TAFE units so that students entering the degree studies have a fair chance at survival.”
d. Recognition of Prior Learning (RPL) should be established “where appropriate but satisfaction of these arrangements should only entitle a student to consideration for entry. It must not be a guarantee of entry.”

e. The arrangements must be made tighter through consultations between TAFE and Higher Education and professional bodies or associations that accredit that course. “Each TAFE and higher degree course being articulated should be carefully examined for particular appropriate credit transfers. These should be at a pre-arranged standard with some sort of entry test required if it is not obvious they are up to standard. This will be especially necessary when coming from other TAFE Colleges.”

f. Need to ensure that the arrangements are not seen by secondary students as a backdoor entry to circumvent ‘ordinary’ VTAC requirements for university entry. Credit transfer should be negotiated on a subject basis (not a credit for year 1 or years 1 and 2, etc.). It should be tailored to the abilities of each student individually (taking into account that conceptual thinking and problem solving skills need to be developed and not just skills building) who must be able to cope with a different system after transfer. Only when the requirements for each applicable subject have been met should exemption or credit be granted. The use of a bridging course may be appropriate.

Certain staff have made recommendations for their specific teaching areas. Examples include the following:

a. “Students doing a TAFE program already have exemption from microbiology and one unit of biochemistry in the second year as well as biology in first year (if they have completed). Exemptions are allowed for chemistry but further emphasis on biochemistry is different and they could not be given additional credit without compromising the standard and integrity of our courses.”

b. “There is a need for adequate Mathematics and Physics remediations.”

c. “We have negotiated on possible partial exemption (depends on APS in one subject accreditation).”

2. Staff development requirements

Two types of responses were given by staff regarding staff development requirements, namely, those who viewed that it was unnecessary and those who identified their requirements. A description of the two views are listed below:

a. Perception that staff development is unnecessary: The statement, “There is too much rhubarb about staff development. Just get on with the job”, may best reflect the perception of staff in this category.

b. Types of staff development required by staff: Staff in this category recognised the importance of staff development to the whole teaching program and not simply to the credit transfer and exemption arrangements. The suggestions for staff development are as follows:
   i. Information on course differences and course/subject planning, how to deal with any special requirements of those students and education about their backgrounds so that staff can use alternative handling methods.
   ii. Student counselling
   iii. “Enable staff to learn and use skills to acknowledge and use students base (prior learning) knowledge.”

3. Curriculum Development

As in staff development, some staff asserted that there was no need to develop curriculum to suit the articulated students. Most of the staff were of the view that curriculum development should integrate all the elements of both the sectors and that it should be undertaken periodically and evaluated to meet the changing need of the educational and training environment. Self-help bridging programs for articulating students were also suggested.
4. Collaboration with TAFE

As indicated in earlier analyses, there was near total consensus among staff concerning collaboration with TAFE in terms of detailed course content, teaching styles and methods, and course exemptions. Staff realised the benefits of collaboration because they share common facilities and problems with TAFE as well as to ensure that there is no overlap in TAFE and University courses. Future collaboration will be intensified with the full implementation of the pathways program. However, there were some concerns too about such collaboration. These concerns have been aptly put by one member who stated that, “articulation should not wag the degree system. The object in articulation is to provide TAFE students access to a degree at degree standard.”

5. Teaching styles/methods

Staff’s perception of the future direction in teaching styles varied from one group who believed that the existing teaching styles or methods are good enough for all and hence requiring no change to the other group who anticipated some changes. The former group had asserted that university teaching methods should not change because of credit transfer. Moreover there has been a constant improvement in teaching methods and with the introduction of the intensive mode, the articulated students should be able to progress more smoothly in their studies. Staff also argued that university learning focuses on independent learning. Also university teaching leans more towards theory, vis-a-vis the practical orientation in TAFE. Hence the articulating student should make up this ground either with help or by himself/herself.

Those who anticipated some changes in future teaching methods mainly focused on multi-modal teaching using educational technologies such as videos, television, and computers. However, many still perceive that face-to-face contact will continue as the major teaching method in the future since the method is more efficient in eliminating mistakes and misconceptions than the use of electronic gadgets. A staff member remarked that educational technologies are gimmicks and do not aid effective teaching. Furthermore, there is a major problem at the moment in developing adequate programs for teaching.

6. Learning resources

As usual there are some contradictions with respect to staff’s perception of the future direction of Swinburne’s articulated program concerning learning resources. Some staff stated that there is no need for learning resources while others always need more. Some said learning resources are declining and having a negative impact on the teaching and learning environments, while others observed that it is continuing to improve. One identified the source of the problem to the Corporate Division which was perceived to be such a high cost centre that it affected the leasing of resources such as library, video and computers and scientific instrumentation, which in turn affected the teaching programs including articulation.

In general, staff perceived that the production of independent learning materials and technological resources (software, video programs, etc.) will be useful to help transfer students make up for minor deficiencies.

7. Other comments

Aside from the above key issues relating to the future of the articulated program, staff have made additional general comments for consideration. These are listed as follows:

- “The problems with articulation involve around the background with the new government in Victoria so that substantial chemistry may once again be taught at VCE level. In the interim, it looks necessary to alter first year courses as a remedial environment, but by doing so we should ensure that the TAFE college will cover much of the information taught in first year.”

- “In the current climate articulation should not provide more than 5% of the intake for undergraduate courses. The record of success in recent years is predictably poor (very poor).”
“If the process of articulation is to benefit students then it is important that the final degree they obtain is marketable and worthwhile. I do not believe this will be the case if standards are to be reduced in order to enable articulating students to succeed. Currently many articulating students are having difficulty in succeeding in the degree program. Special counselling and support services may need to be provided to these students in the future. However, the current credit transfer system does not appear optimum for some students who have missed out on ‘depth’ at the first level. In accepting the need to improve the articulation between TAFE courses and the University degree program I believe it would then be wrong to treat articulating students as ‘special cases’ with special services and support systems. It is important to collaborate with TAFE so that these students are provided with an adequate background of knowledge for success in later year units if granted credit transfers. Staff will have less time to spend with these students in the future."

“May wish to monitor performance of transferees in order to ensure articulation is working.”

“I would like to welcome only above-average TAFE students coming into degree courses. I would be concerned if TAFE students excluded well qualified VCE students from the degree.”

**Suggestions for Ongoing Monitoring and Evaluation and Future Research**

It is noted that this study made pre-measurements of quantitative data and qualitative perceptions of students and staff prior to the implementation of the Pathways Project within SUT. These measures were undertaken during mid to late 1992. A number of changes were taking place within the credit transfer and articulation operating environment at SUT towards the end of 1992 and 1993. These changes include the following:

- A Pathways Co-ordinator was appointed with the responsibility of overseeing the development of integrated curriculum and formal credit transfer statements within each joint sector working party.

- In 1992, some disciplines, such as Applied Science, have made significant progress towards the design and implementation of articulated curricula, and all other disciplines are also actively working towards similar goals.

- The Equity Manager and RPL Committee have been active in developing RPL models and a credit bank software-system.

- SUT will be implementing a new MIS system during mid 1993 which will provide a more reliable capture of statistics relating to credit transfer and articulation.

- There has been an increase in enrolment of full-time TAFE students who have completed the Victorian Certificate of Education with expectations of articulated pathways to higher education.

- There has been increasing awareness of the importance of credit transfer at the institutional, state and national level.

- Adoption by the university of a credit point system which should facilitate the delivery of credit transfer to students.

In view of the above environmental changes, post-measures will be undertaken both within the qualitative and quantitative domains of credit transfer and articulation during the second half of 1993 (following the implementation of the new MIS). This second iteration of the Monitoring and Evaluation of the Pathways Program should be informed by comments received on this Report from the SUT community.

Steps have been taken during the course of the Pathways Project to take note of the concerns of staff and students as expressed in this preliminary survey and to frame strategies for ‘mainstreaming’ credit transfer arrangements within the normal policies and procedures of the university.
During 1993 the following measures have been achieved:

- Development and publication of a University policy on Credit Transfer.
- Formal Credit Transfer agreements from each Faculty.
- Recognition that application of credit transfer should be automated as much as possible, and therefore should be applied using the MIS system at the terms of enrolment.
- Targets for TAFE articulating students have been agreed to by the faculties, and TAFE articulating students recognised as a separate category within DEET funded load.
- Agreements on qualitative and quantitative ongoing monitoring and evaluation of ‘Pathways’ students have been made. Faculties will take the responsibility for qualitative measures and Planning and Information Services quantitative ones.

In conclusion this study suggests that TAFE to higher education articulation is academically feasible and indeed has been a reality at some Australian multi-sector institutions for a few years. The fact that articulated students perform equally as well as ‘normal’ entry students to higher education (school leavers) provides confidence in the future continued educational success of TAFE to higher education articulated programs.

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