APPRAISALS TO LEARNING IN UNIVERSITIES AND CAEs

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Introduction
Given the context of enforced amalgamations between some universities and CAEs, the question of the existence of real differences between the two sectors in terms of academic ethos, function, and impact on students, is particularly pertinent.

The characteristics typical of Australian colleges and universities are summarised in the CTEC Report for the 1982-4 Triennium. That general pattern was established in the sixties, following the Martin Report, in which advanced education and university functions were defined and allocated to the two different sectors. In North America, on the other hand, the advanced education function is in effect shared between the universities and the equivalent of TAFE. Now that CAEs have grown well beyond their original remit to the point where they duplicate some university functions, it is worth asking if they implement these functions any differently from universities. If such differences do exist, there would be obvious implications, for example, for allocating teaching responsibilities in advanced education or university sectors of amalgamated institutions.

Functions of universities and colleges
Essentially, universities are discipline oriented. Their major function is to promote the study of a discipline in depth; to extend that discipline through research; to teach both the reasons for and the fruits of that research; and to train others in the ways appropriate to researching that discipline. Courses are designed to build successively on each other. Staff are appointed and promoted for their expertise in a discipline, in adding to that discipline through their own research, and in teaching and otherwise publishing from their expertise. The government of universities, and the protection to academics accorded by tenure and academic freedom, make sense only in that context staff need protection to carry out their research, and to publicise their findings. Consequently, courses are designed to make a suitable package for the profession in question; subject units are not studied for their intrinsic value. Staff are appointed for their teaching skills and their professional experience; they are not required to undertake research, and with some notable exceptions, few do so.

Collins and Biggs have analysed the matriculation requirements, sequencing of courses, degree structures, and teaching and examining procedures of universities and colleges in terms of their SOLO Taxonomy, and argued that the university structures are higher up the taxonomy and make more complex and higher level cognitive demands on students than do CAE structures. Biggs compared the motivational patterns and learning strategies used by college and university students and found that students conformed to these expectations. College students were more pragmatically motivated, and more likely to use a strategy involving therote reproduction of selected parts of coursework, while university students were more intrinsically motivated and more likely to use strategies that would make readings and other materials meaningful to them.

Approaches to Learning
The distinction between meaningful and rote learning is an old and familiar one: it underlies a rather broader distinction - between deep and surface approaches to learning - that is applied to the kind of learning undertaken by tertiary students.

In this paper, we look at differences between college and university students in what have been termed deep and surface approaches to learning.

Deep approach
College students were more intrinsically motivated, and more likely to use strategies that would make readings and other materials meaningful to them. College students were more motivated by intrinsic interest in the course content; they were more likely to re-read key course materials, and to engage with course content beyond the scope of the course. University students were more pragmatically motivated, and more likely to use strategies that would make readings and other materials meaningful to them.

Surface approach
College students were more likely to adopt surface approaches to learning, and were less satisfied with their performance. These findings were supported by evidence from the study of CAE students. College students were more intrinsically motivated, and more likely to use strategies that would make readings and other materials meaningful to them.

Deep approach
University students were more intrinsically motivated, and more likely to use strategies that would make readings and other materials meaningful to them. College students were more pragmatically motivated, and more likely to use strategies that would make readings and other materials meaningful to them.

Surface approach
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Desirability
It seems almost unnecessary to say that the deep approach appears to be more academically desirable. The evidence bears this out very strongly. The deep approach leads to better learning, whether “better” is defined in terms of complexity of outcome, satisfaction, self-rated performance, achievement motivation, reproduction strategy, achievement motivation and reproducing strategy, organising strategy and reproducing strategy. Results
In general, universities students tended to be higher on deep, and lower on surface: while CAE students tended to be lower on deep and higher on surface. This finding is, however, equivocal because there are strong faculty differences on the surface approach, and the faculty mix differed between colleges and universities. The data are therefore presented first by faculty (Figure 1). It should be noted that an analysis of variance showed reliable differences between institutions on the deep approach, but no faculty difference, institution and faculty effects, as well as their interaction, were highly significant on surface. This picture is presented in Figure 1.

Deep Surface
Deep approach = intrinsic motivation + meaning strategy + achievement motivation + organising strategy.
Surface approach = instrumental motivation + reproducing strategy + achievement motivation

In the university sector, students from all faculties are high on deep approach, with Science students also scoring high on surface. In the college sector, students from all faculties are lower on deep, with Education and Science students high on surface. The interesting switch here is for Education students, who not only drop on deep, as do Arts and Science students, but who quite drastically increase on surface. This finding has important implications that are addressed later.

Figure 2 shows a similar analysis for year of study.

Deep Approach

Table 1
Principal components analysis, with reverse rotation of SPQ scale scores of 2,141 college and university students.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Deep</th>
<th>Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Motivation</td>
<td>81</td>
<td>56</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>79</td>
<td>73</td>
</tr>
<tr>
<td>Achievement Motivation</td>
<td>72</td>
<td>70</td>
</tr>
<tr>
<td>Reproducing Strategy</td>
<td>65</td>
<td>61</td>
</tr>
<tr>
<td>Organising Strategy</td>
<td>73</td>
<td>72</td>
</tr>
</tbody>
</table>

Percentage Variance

<table>
<thead>
<tr>
<th>Deep</th>
<th>Surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>37%</td>
<td>27%</td>
</tr>
</tbody>
</table>

In obtaining deep and surface scores, we decided to give each significant factor loading a weighting of unity because of convenience and because this will be in keeping with prior evidence (the coefficient between factor scores and unitary weight scores is 94). Thus:

There are strong institutional differences on both deep and surface, and strong year effects on deep, but none on surface. The interaction between year and institution is not significant on either deep or surface. The institution effects are clear, and similar to those in Figure 1. The year effect on deep is interesting and counterintuitive. The third year students are lower on deep than first and second years.
Even in universities, students are not more oriented towards a deep approach by their final year than in the first year, but rather the contrary: this is the more surprising given the degree of attrition that has taken place, with the more likely retention of students with a deep approach. Possibly this reflects a cynicism that is felt towards the middle of the final year, when students' main thoughts are to get out and into the work force, apart from the minority who will be staying on for higher degree work. Alternatively, a number of highly idealistic, though not terribly adaptive, students might have been eliminated through exams and assignment pressures over the first two years of study.

In the remaining results the data refer to the faculties and programmes of individual institutions. Only those institutions are retained where numbers are sufficient to be meaningful statistically. The institutions are referred to by code number, to preserve anonymity. The same numbering is preserved through all figures.

Arts

The positions of three universities and one CAE are plotted. Students from one university (1) stand out as high on deep and low on surface; students from the remaining institutions form a cluster. It should be pointed out that CAE Arts students were enrolled in courses in Fine Arts, Drama and the like.

Science

Deep and Surface approach mean scores for Science students in particular institutions

Students from one university (2) are high on both deep and surface, compared to the others, with students from two CAEs falling lowest on deep (9, 8). There is a middle band of students from five institutions on deep, but they show a spread on surface, with students from one university (3) being the lowest on surface.

Education

Deep and Surface approach mean scores for Education students in end-on and concurrent programmes in particular institutions

Unfortunately there were insufficient numbers to compare the two types of programme within the one institution, so strong conclusions cannot be drawn about the effects of type of programme. However, some general observations may be made.

Students from all the universities scored relatively low on the surface approach with students from six CAEs exceeding the universities on the surface score. One CAE with a concurrent programme (9) scored low on surface and moderately on deep. Three CAE end-on programmes were low on deep (15, 9, 11) and one university (3). Two concurrent CAEs have now merged (10, 11) and are now one programme; these two institutions were as high as the universities on deep, but also high on surface. However, 11 also offered an end-on programme, the students of which scored the lowest of any on deep. While several universities offer concurrent programmes, unfortunately none figured in the present sample in sufficient numbers to enable a useful comparison.

As a matter of interest, it might be pointed out that in Figure 5, two institutions, a CAE (concurrent) and a university (end-on), are currently billed for amalgamation. Individual t-tests were conducted on deep and surface approaches in these two institutions, and the university students were significantly higher than the CAE students on deep, and significantly lower on surface.

Implications and Conclusions

In view of the larger numbers involved, the most stable generalisations should be drawn from the analyses comparing institution types, rather than individual institutions, as represented particularly in Figure 1.

It is clear that there are highly significant differences between CAEs and universities in the extent to which students report using deep and surface approaches to their learning. Given the functions, aims, staffing and course structures within each type of institution, these differences are in line with expectations. With faculty held constant, universities appear to develop, or attract, students with a deep approach to learning, and CAE students with a surface approach.

Such a pattern is not necessarily inappropriate. A deep approach to learning is important in many professions, particularly where the student plans to become involved in research. However, it may well be that surface learning in CAEs is adequate at the pre-service stage of professional preparation. A deep approach may follow when the "smorgasbord" of courses at the CAE becomes integrated with practical experience.** Such a hope underlies the thinking behind the "3 + E + 1" degree structure currently being adopted in many CAEs (the numbers refer to years of full-time study, and the "E" for professional experience). There is, however, no
emphasis would be on the application of existing experience in some professional practice. In the case of CAE science graduates, for example, many would be heading for a "hands-on" career in agriculture and industry, where the emphasis would be on the application of existing knowledge and techniques in fairly standard settings. The need to know the broad area well enough to keep things going. Indeed, some industrialists have complained about the deep approach displayed by university graduates; they ask too many questions, don't know enough about the details of the immediate context, and want to try out new ways of doing things rather than sticking with the system as it exists in the present firm. In short, many employers require a surface rather than a deep approach.

It is Education that gives rise to most concern, where the difference between university and college sectors is most marked. While there are some CAE students in concurrent programmes who score reasonably well on the deep approach, none do in end-on programmes, and almost all CAE students are high on surface, whether end-on or concurrent.

These data, and those of the earlier study, are of particular relevance when considering the recommendations of two fairly recent Committees on teacher education in NSW, which, if implemented, would effectively restrict the preparation of teachers to the advanced education sector. A likely result of this would appear to be that the bulk of teachers entering high schools by the late 1980s would be likely to be uninterested in their subject matter, prone to use reproductive, short-term learning strategies, and dissatisfied and disillusioned with their own learning experiences as students.

It is hard to imagine a teacher with a preference for the surface approach teaching in a manner that is likely to stimulate a deep approach in his or her students. Given, too, that deep or surface learning strategies are acquired at least as early as high school, and possibly even earlier; the decision to locate teacher preparation in this or that sector could have resounding effects on the development of deep or surface approaches in students. Such a decision should surely be made on education grounds, not industrial or political ones. The same point applies to enforced amalgamations between universities and colleges. It is difficult to conceive how any effective amalgamation could result in anything but a slide from the top left of our figures to the bottom right, i.e. from deep to surface approaches, given the diminution of resources and consequent staff freezes, and given too, that most amalgamations have been conducted in an industrial atmosphere with guarantees preventing re-benchmarking. Such a situation can only mean that staff, within and across the advanced education and university sectors, will have to "retain" their teaching loads will increase; their involvement in research will inevitably decline.

These data certainly do not encourage much optimism about the likely effects of university-CAE mergers. They do, however, act to define a goal for such mergers; if amalgamations are to proceed, efforts must be made to keep students functioning at a deep level, where that is indicated as both academically and professionally desirable, as it surely is in the case of Education. It is to be hoped that the decision-makers involved in making the best of this very bad job will make their decisions on academic grounds, not industrial or political ones, where the difference between university and college sectors, will have to be uninterested in their subject matter, prone to use reproductive, short-term learning strategies, and dissatisfied and disillusioned with their own learning experiences as students.

References