

PAPERS FROM THE  
GLADSTONE PLANNING WORKSHOP

378.9435 3  
The Institute in 1984



1000312406

C1

378.9435

3

**CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION**



**"THE INSTITUTE IN 1984"**

**GLADSTONE WORKSHOP 28TH - 30TH MAY, 1976.**

# " THE INSTITUTE IN 1984 "

## PROGRAMME

### FRIDAY, MAY 28TH :

6.30 p.m.

Pre-dinner Drinks

7.30 p.m.

Dinner

8.30 p.m.

#### Preliminary Session

1. Welcome and introduction of guests :  
Acting Chairman of Council
2. Explanation of objectives and organisation of Workshop : The Director
3. Questions and Brief Discussion.

9.15 p.m.

Coffee and refreshments

### SATURDAY, MAY 29TH :

8.30 a.m. to 12.30 p.m.  
(morning tea 10.30 a.m.)

#### Plenary Session : Chaired by Dr. W. Hannah

The objective of the plenary session is to establish some idea of what the external environment will be between now and 1984 for C.A.E.'s in general and the C.I.A.E. in particular. What will the opportunities be? What will the constraints be?

Each contributor will speak for 10 minutes and answer questions for 10 minutes. Where possible, speakers will prepare brief notes in advance for distribution to participants. Submissions will be invited from C.I.A.E. Heads of Departments, and the Professional Staff Association.

1. Social and Political Environment : Dr. G. Harman, A.N.U.
2. Economic Development of Central Queensland :  
Mr. W. Fischer, State Co-ordinator-General's Department, Fitzroy and Mackay Region.
3. Social Development of Central Queensland :  
Mr. R. Brown, Social Planner, Fitzroy Region.
4. Physical Development on Campus : Mr. W. Bremner, Consulting Engineer.
5. Education of Women : Senator Kathy Martin, Q'ld.
6. Education of the Disadvantaged : Mr. R. Shelley, CIAE.
7. Continuing Education : Mr. J. Rooth, University of New England.
8. Overseas Students : Mr. D Bradley - Australian Development Assistance Agency.
9. State Higher Education Planning : Dr. J. Allen, Board of Advanced Education.

12.30 p.m.

Lunch

1.30 p.m.

1.40 p.m.

1.50 p.m. to 5.00 p.m.  
(afternoon tea 3.30 p.m.)

5.00 p.m.

6.00 p.m.

7.30 p.m.

**SUNDAY, MAY 30TH :**

8.30 a.m. to 12.30 p.m.  
(morning tea 10.30 a.m.)

12.30 p.m.

1.30 p.m.

Thoughts on morning session : Acting Chairman of Council

Thoughts on morning session : Director

Workshop will break into four (4) groups to review, discuss and analyse the morning presentation with a view to developing C.I.A.E. priorities for the period between now and 1984. Each group will elect a Chairman who will report the group's findings to the plenary session. The visitors will move from group to group to clarify points made in the morning session and to elaborate.

Groups will be comprised as follows :-

Group 1. Woodcroft, Gasson, Boothroyd, Williams, Gates.

Group 2. Hiskens, Appleton, Fairbanks, Osborn, Stockwell, Price.

Group 3. Bencke, Bartley, Carkeek, Smith, Grigg.

Group 4. Turner, Edwards, Sadler, Schroder, Young.

Plenary Session : Chaired by Dr. W. Hannah

Group Chairmen will report back.

Break

Dinner

Four groups will be established to examine the effects of the priorities on specific areas. Again the visitors will move from group to group. Each group will elect its own Chairman who will report back to the plenary session.

Group 1. Government and Administration :

Role of Council, role of Director, structure of Administration, structure of Council committees, relationship with community.  
Hiskens, Appleton, Fairbanks, Carkeek, Price.

Group 2. Teaching

Admissions policy, timetabling (trimester, short course, intensive, sandwich, continuing), teaching strategies, assessment and justification.  
Gasson, Young, Edwards, Sadler, Bartley, Grigg.

Group 3. Campus and Facility Planning :

Buildings, grounds, services, committees.  
Woodcroft, Osborn, Smith, Turner, Bencke, Schroder.

Group 4. Staffing :

Kinds of staff (part-time, tenured) relationship with professional and industrial organisations.  
Shelly, Williams, Gates, Stockwell, Boothroyd.

Lunch

Plenary Session : Chaired by Dr. W. Hannah

Group Chairmen will report to the plenary session. Dr. Hannah will then summarise the Workshop and its results.



## LIST OF PARTICIPANTS

Mr. N.A. Alford	Executive Officer, Queensland Board of Advanced Education
Dr. J.A. Allen	Chairman, Queensland Board of Advanced Education.
Dr. A.S. Appleton	Director, C.I.A.E.
Mr. B.L. Bartley	Registrar, C.I.A.E.
Mrs. T.C. Bencke	Member, C.I.A.E. Council
Dr. R.G. Boothroyd	Head, Mechanical Engineering, C.I.A.E.
Mr. D. Bradley	Representative, Australian Development Assistance Agency
Mr. W. Bremner	Consulting Engineer
Mr. R.L. Brown	Regional Social Planner and Department of Social Security Fellow, Student C.I.A.E.
Mr. J.R.T. Carkeek	Head, Business Studies, C.I.A.E.
Mr. B.W. Edwards	Chief Librarian, C.I.A.E.
Mr. G. Fairbanks	Senior Lecturer in Government, C.I.A.E. Member, C.I.A.E. Council
Mr. W.M. Fischer	Fitzroy & Mackay Regional Co-ordinator, Queensland Co-ordinator, General's Department
Dr. I.S.H. Gasson	Head, Education Studies, C.I.A.E. Member, C.I.A.E. Council
Mr. R.B. Gates	Workshop Co-ordinator, Senior Lecturer in Management, C.I.A.E.
Mr. W.L. Grigg	Acting Head, Civil Engineering, C.I.A.E.
Dr. W. Hannah	Department of Education, University of New England, Representat Kellogg Foundation
Dr. G. Harman	Education Research Unit, Australian National University
Mr. B.G. Hiskens	Deputy Chairman, C.I.A.E. Council
Senator K. Martin	Liberal Senator, Queensland
Dr. A.W. Osborn	Head, Biology, C.I.A.E.
Mr. N. Price	Workshop Recorder Publicity and Functions Officer, C.I.A.E.
Mr. J. Rooth	Director of Continuing Education, University of New England
Mr. D.G. Sadler	Head, Arts, C.I.A.E.
Mr. F. Schroder	Head, Electrical Engineering, C.I.A.E. Member, C.I.A.E. Council
Mr. R. Shelley	Lecturer, Education Studies, C.I.A.E.
Mr. J. Smith	Head, Mathematics & Computing, C.I.A.E.
Mr. G.R. Stockwell	Senior Lecturer, Education Studies, C.I.A.E.
Mr. H.G. Turner	Member, C.I.A.E. Council
Dr. G.J. Williams	Head, Chemistry, C.I.A.E.
Mr. D.E. Woodcroft	Member, C.I.A.E. Council
Mr. R.L. Young	Head, Applied Physics, C.I.A.E. Member, C.I.A.E. Council

INTRODUCTION:

The Workshop held in Gladstone over the weekend of May 28th - 30th was an early part of a planning exercise which will extend over the rest of this year and which, it is hoped, will enable broad patterns of development for C.I.A.E. to be laid down for a number of years ahead.

The present time is an opportune period for the Institute to be reviewing its progress, considering its options and planning its future. For in many ways, 1976 can be viewed as a period of consolidation when the bread and butter UG1 and UG2 courses are established (but still to be subject to much refinement) and the Institute is seeking to broaden its course offerings in areas and at levels related to the current range of courses offered.

The past four years have seen a doubling in student and academic staff numbers at C.I.A.E. The next three years will see a further growth of the Institute by some 50 percent of present student and staff numbers. These projections (shown below), were unknown at the Gladstone Workshop and represent the levels of support which the Queensland Board of Advanced Education advised (on 2. 6. 1976) that they are prepared to recommend to the Commission.

<u>Year</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Proposed Enrolments	1110	1369	1520	1610
EFTS	(Actual)		(Provisional)	(Provisional)

It is hoped that the material which follows - background contributions to the Workshop and reports from Workshop groups - will be of sufficient interest to every member of staff of the Institute to ensure that informal and formal discussions of the issues raised will take place and staff at all levels will become involved in this planning exercise which is so vital to the future of C.I.A.E. To provide a frame of reference within which debate can occur, the following scheme is proposed:-

1. A plenary session of staff at all levels (with student representatives present) involving the Gladstone Workshop participants in a question-and-answer-situation, to further clarify and discuss the issues raised and developments from these. This is planned for early July. A short publication of further points raised for addition to this material will be available.

.....2/.

2. Further Workshop sessions scheduled to involve all staff in groups of 8 - 10 on a non-departmental basis, to allow a wide-ranging discussion of issues and viewpoints. These sessions will be timetabled over a period of a few weeks in late July - early August to allow all staff to be involved, with at least one Gladstone Workshop participant in each group to provide continuity. A brief summary of the main issues which emerge will again be published for addition to the enclosed material.
3. Common interest workshops for specific debate of main issues, open to all staff with particular interests in one area or another, to be convened to enable maximum participation.
4. A detailed report of the exercise will be made for consideration by Council who have the responsibility for development of policy for the Institute's future.

This is a provisional plan which will give staff and student representatives the opportunity for contributing their thoughts and ideas towards the future development of C.I.A.E. At this time, the plan itself is flexible, and should alternative strategies become available which offer a better vehicle for discussion and involvement, they will be implemented.

You are invited to involve yourself in the Institute's and your own future.

4. 6.1976

DR. A.S. APPLETON  
DIRECTOR.

Mr. Chairman, Ladies and Gentlemen. I'd like to begin by thanking the Director and the Institute for inviting me to participate in the Workshop. May I offer my congratulations to the Institute on the idea of running a Workshop like this for looking at the future. Despite what Dr. Appleton said last night about the reason for choosing the cut-off point, I think I would have felt happier if we were facing up to 1986 rather than 1984. The objective for this first session is to establish some idea of what the external environment will be like now and 1984 for the C.A.E.'s generally and this college in particular. To my mind this is important. Colleges are set in particular, social, political, cultural, economic, educational contents. They are the products of society and they are supposed to serve society. They depend on public funds, and in turn, they help mould and transform the society. These societal contexts provide the constraints and opportunities in which a college can develop. In some ways, it is plainly irksome to academics, that a college or university cannot be developed solely in a way to meet academic tastes, but we must face the facts of life. You have asked me and my colleagues who follow to talk about the way that society and its many facets is likely to develop over the next decade or so. To speculate about possible changes, to predict the kinds of problems and possibilities that the college will have to face - this is quite a task; quite a hazardous exercise. It's difficult and hazardous since our society is very complex. Since so many of the facets of society are interrelated, a change in one can cause a ripple effect right across many facets of society. Our Australian society is influenced by factors from outside as well as forces from within, and the rate of social change has been so rapid over recent years. On the last point, take the college sector along. Really a tremendous revolution has taken place in a little over a decade. Who could have predicted in 1965, when the Menzies government agreed to provide funds for institutes and colleges, that the C.A.E. system would have developed in the way it did, that there would be so many colleges today spread right throughout Australia. That bachelors and masters degrees would be so well developed, that teacher education programmes would be part of the sector and so on. Prediction, then, is hazardous. Nevertheless, it's part of the exercise in planning. Our plans for the future, if they are to be realistic must inevitably depend on what we think our world will be like or could be like. Still we need to recognise the dangers and limitations of what we are doing. Possibly in planning, a useful strategy is to make explicit some of our basis assumptions about the future on which our plans are based, than as time goes on, we can constantly check whether these hold true, and where necessary feed new predictions into our planning. Of course, predictive statements may be based on information of different kinds and some people are in the position to speak with much greater insight and authority than others. Predictive statements for example, might be based on hunches or experience in other countries and settings, or on studying past history and assuming that some trend observable will continue in a similar fashion into the future. But other predictive statements could be based on inside knowledge of particular decisions that have already been made in government or an industry. As plans have begun to be formed it is probably sensible to glance back at the assumptions about the future on which they are

based, to check them out further and to have some idea about their possible reliability.

I am to talk about the social and political environment - two broad areas. I'll try to cover the ground quickly and perhaps I could fill out details on particular points should people be interested. With regard to the social environment, I want to draw attention to five matters briefly. First, population trends. It is obvious that the size, composition, distribution of the population has a direct effect on colleges. Perhaps the most important population trend to note is that the birth rate in Australia has dropped. The slump has been dramatic, from more than 276,000 births for the calendar year 1971 to 239,000 for the year ended June, 1975. Borrie forecasts that if the present fertility pattern remains constant and if national immigration was halted the country's population would be about 15.5 billion by the end of the century. Of course we can't be sure about the constancy of this present fertility pattern and of what will happen with immigration, but Borrie himself doesn't expect a major change in the fertility pattern and I think it's probably doubtful that we will ever go into migration into Australia on the scale that occurred in the early post-second world war years. But it probably means that there will be fewer school leavers than we might have anticipated, fewer young people to seek places in tertiary institutions. Now of course, it will take some years for the drop in the birth rate that occurred between 1971 and 1975 to directly effect colleges. Those born in 1971 will not be ready for college until the late 1980's but there will probably be a much more rapid, indirect effect through influencing demand for schoolteachers. My impression is that at the moment we are fairly close to a balance between demand and supply for teachers. There are probably some qualified teachers who can't get jobs but there are also shortages in particular fields and geographic locations, but the situation seems to get much more difficult. One recent study suggests that supply will continue to increase for the next decade but the demand will almost level off as the result of decline in new enrolments in primary and secondary schools. Governments already appear to be aware of this situation, as Senator Carrick's statement of 20th May indicates. This drop in teacher demand has serious implications for colleges, particularly for education schools. Overseas a similar trend has been evident in a number of countries, for example, in Britain at the present time, the number of students in teacher education courses has been cut back. In 1970 there was something like 112,000 places, soon it will be 48,000, and colleges of education are having to amalgamate, turn to other functions or close. Another population trend to note is that the proportion of the over-65-years-of-age-group is increasing. Will there be new demands from people in this group for colleges to serve them? Finally, under population changes, I've mentioned the drift from city to country. The drift goes on but I sense that attitudes might be beginning to change, that many people in the city are beginning to find the cities less attractive while the country's attractiveness is increasing. It's interesting to speculate about long-term possibilities here as well as the possibilities with regard to government policy on growth sectors outside major cities.

Second, the changing occupation structure. Over the last couple of decades, we've seen a major revolution here. A whole range of new occupations has emerged and they have required a whole range of new courses to prepare young people for them. Also many occupations have changed their character and there has been an upward push for higher status and related to this moves to secure more years of training possibly at a higher level. What new occupations might we expect to emerge in the next decade? What courses of training will move into the tertiary field, in part or possibly entirely - real estate? It's interesting that this is a big area for tertiary courses in the U.S. Nursing? Will this move from hospitals to colleges entirely? And we could go on. Third, the declining importance of the church and the family. We have seen marked changes here and as a result the school and social welfare agencies have had to take over many of the functions traditionally performed by the families and by the church and other organisations. Will this trend continue? If it does, there will probably be an increasing demand for colleges to produce people for social work, social welfare, social help, in increasing areas. Four, the attitudes and preferences of young people. This too, is an important consideration and particularly about the desire of young people to follow a tertiary course, and if so, whether on a full-time or part-time basis. The only recent projections I've seen nationally with regard to the proportion of young people in the age group 17 - 22 years who will probably wish to participate in higher education, are those in the last report published by the Universities Commission (the last triennial report). These suggest that participation rates, which are still lower in this country than the U.S. and Canada, will continue to rise for at least a decade. And the fifth point under social - the demand from minorities. Over the last decade, minorities have secured a new place in our society. They are listened to much more. Their demands and needs are taken much more seriously. And often they exert a lot of power. Possibly colleges will have to listen more carefully to minority groups in the future.

I now turn briefly to the political point and I wish to make three points. First, politically the next decade for education, generally, is likely to become more difficult rather than less difficult. Today this seems to be evidence of a growing public dissatisfaction or uneasiness about education, about the money that has been spent, about possible failure to deliver the goods. You have only to read the letters to newspapers or what politicians on both sides of the house have been saying in the federal parliament. And of course higher education is particularly vulnerable within the education system. It has no strong body to speak on its behalf. Apart from this, I think many people now realise that even in a country so well endowed as ours, the sources of funds are limited and that apart from education there are many other legitimate claimants. Some of them who have not done even as well as education in the past.

The second point I make is - the funding game could well change if the new federalism is followed with vigour. For example, many present areas of federal responsibility for education go back to the states. We may even return to a matching arrangement situation between federal and state governments for higher education. And the third point - some of the lines of government thinking are probably becoming clearer than they were a matter of weeks ago. In particular, I would refer you to Senator Carrick's speech of 20th May in which he sets out guidelines for the triennial programmes for the period 1977-79 for the Commissions. A few points deserve comment. At least for the present, the ground rules have changed. The Commissions no longer assess the needs of colleges and recommend the level of funding that they see appropriate, but rather the government first sets the size of the pie. There is to be a new law of triennial planning on a rolling basis. As each year is completed, plans for the next two years are updated and plans made for a third year. The colleges appear to be going to receive more generous treatment than universities. Certainly for 1976 they are supposed to receive a 5% increase in growth in real terms compared to the 2% for universities. Then it appears that the growth in technical and further education isn't likely to be given a higher priority than possibly some other areas of post-school education. Now this final point appears to fit in with quite a lot of thinking of state education authorities. There seems to be a good deal of discussion about the development and planning of community colleges. This, I think, is something we should consider this weekend.

Thank you Mr. Chairman. I hope I didn't take too long.



CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

PLANNING WORKSHOP

GLADSTONE 28th - 30th MAY, 1976

THE INSTITUTE IN 1984

PHYSICAL DEVELOPMENT ON CAMPUS

Brief Notes by W. Bremner.

INTRODUCTION

In November, 1974 we were commissioned by the Council of this Institute to carry out "the co-ordination of the current and future building and site works programme".

Since that date we have also been commissioned to carry out phase 1 of a Master Plan of this campus.

MASTER PLAN

It may be useful to restate the suggested phasing of the preparation of a Master Plan as submitted by us to the Council of the Institute in February, 1975.

Phase 1 - Existing Information

- (a) Assessment of all existing reports
- (b) Isolation of factors not covered by existing reports as previously studied -
  - e.g. Social Factors
  - Regional Impact
  - Identification of Physical Constraints
- (c) Critique of Campus Population Analyses
- (d) Statement of backlog in provision of buildings and services

Phase II - Planning of Campus

- (a) Statement of objectives.
- (b) Population analysis.
- (c) Exterior services requirements, water supply, sewerage, stormwater drainage, P.M.G.
- (d) Interior services - exterior services
  - plus T.V. and computer links, airconditioning
- (e) Traffic external and internal.
- (f) Roads and car parking,
- (g) Transport internal and external.
- (h) Future building groups and site development.
- (j) Open space and recreation areas.
- (k) Landscaping.

Phase III - Draft Report

- (a) Re-analyses of all objectives stated in Phase II. Some of this analysis will obviously take place during Phase II work.
- (b) Development of the Master Plan and the co-ordination of all of Phase II work
- (c) Preparation and presentation of draft report

Phase IV - Preparation and printing of final report.

CO-ORDINATION AND MASTER PLAN INTERACTION

The first task completed was an inventory of existing buildings and services. This was a pressing one demanded more by the buildings programme than by any other planning requirement. It required that some phase II work be undertaken as a matter of urgency. Hence an endeavour was made to locate and plot all interior services and to up-date the contour surveys. This was a time consuming task complicated by the absence of "as constructed" plans, particularly in relation to underground services. These are shown on the plans tabled and already they have been found to be in minor error in excavations recently carried out for new buildings and services. The site was divided into 3 parts - Academic, Sporting and Residential Precincts. This was purely for planning convenience and these boundaries are flexible. It also became a matter of urgency to investigate the provision of air-conditioning by a centrally located chilling plant. Although there is known to be large savings in future expenditure, particularly in running costs, recent financial constraints (1975/76), in relation to the capital funding of buildings projects, led to the rejection of this type of airconditioning.

This has had considerable side effects on planning generally and in particular planning of the E.R.A. Building. This is a large building (gross floor area 6135 m<sup>2</sup>) with a total estimated project cost (December '75) of \$2.5 million dollars. Unfortunately it was not sufficiently large by itself in air-conditioning load to allow the construction of Stage I of an economically viable centrally operated chilled water plant.

At the time of this consideration another large building project - Education and Humanities Building - was being sketch planned. This sketch planning was just completed when capital funding allocations were severely cut. This building combined with E.R.A. would have allowed an economic stage I central chilling plant to be constructed.

PHYSICAL CONSTRAINTS

The identification of physical constraints within this campus grew out of the inventory of services and the services requirements for buildings programmed for construction.

The dominant physical constraints are :-

- (a) There are two natural drainage lines with large external contributing catchments suitable for the development of two lake type storages and future irrigation water sources. These constitute areas that are unsuited economically for siting of buildings.
- (b) The best foundation materials for buildings lie in the area parallel to the Bruce Highway, the area at the north-east corner of the site fronted by Yeppoon Road and Norman Road and the ridge running west from Norman Road between the two natural watercourses.
- (c) There is a very good natural amphitheatre area with black soil cover and lower evaporation rates that is eminently suited for the establishment of playing fields. It is a major planning error that the first playing field was constructed at high cost on some of the best building land on this campus.
- (d) There is a lightly timbered area (about 28 ha) at the south-east corner of the site that has been adopted as an ecological reserve with one of the lakes (a) above within its boundaries. The conflict between water use for irrigation and the ecology of this lake will be a future management problem.
- (e) It is foreseeable that the use of town water supply for irrigation of this campus will become a future recurrent expenditure of embarrassing magnitude. It is fortunate that this site has the natural potential to overcome this constraint in the development of landscape. For this reason the development of these water storages may warrant a higher than usual priority.
- (f) In general, the soils are poor agriculturally and there is evidence of severe leaching and deterioration due to long term overstocking which is a severe restraint in short term landscape development.

#### SITE POPULATION CAPACITY

So that services planning could keep up with the building programme, particularly underground services such as stormwater drainage, electrical H.V. and L.V., sewers, P.M.G. and water supply, an urgent analysis of Site population capacity was carried out. This was confined in the main to the academic precinct so that decisions could be made regarding capacity and siting of electrical substations, location of drainage structures, location of sewers, location of water mains, location of chilled water reticulation etc. Urgent decisions were also required in relation to the positioning of main internal access roads and the development of a philosophy

regarding transport access to building and student and staff car parking.

#### STUDENT POPULATION

The first requirement was the assessment of the possible student population capacity of the site. This involved a decision regarding the ratio of buildings to site area and the layout of buildings to preserve breezeways and sight lines of the surrounding panorama, particularly to the east. The existing ratios of floor area to site area are comfortable and climatically and aesthetically suitable and these ratios were adopted.

Universities in Australia in general vary between 18 m<sup>2</sup> and 28 m<sup>2</sup> gross academic buildings floor area per student.

December 1975 C.I.A.E. gross Academic buildings floor area per tertiary student was 15 m<sup>2</sup> (approx.)

In 1977 with the completion of the E.R.A. building and an assumed E.F.T.S. population of 1200 tertiary students the gross academic floor area per tertiary student will be 17 m<sup>2</sup> (approx.)

Because of likely financial constraints in the period under consideration the future gross floor area, based on tertiary students at C.I.A.E., is not likely to exceed 15 m<sup>2</sup> per tertiary student.

A Plot Ratio of 0.60 would appear suitable for future planning purposes. The sketch plan shows a buildings layout with a P.R. 0.4, gross floor area 68000 m<sup>2</sup> and a possible tertiary student population of 5000 (approx.)

No analysis has been undertaken to determine when this student population will be reached. For planning purposes it is sufficient at this time to show that the site can accommodate this population.

#### EXTRACT OF PLOT RATIOS

##### Academic Precinct Plot Ratios

Each building is given a strip not less than 12 m clear surround.

$$\text{P.R. (Plot Ratio)} = \frac{\text{Total Gross Floor Area in Building of Group of Buildings}}{\text{Area of the building site available}}$$

Existing Buildings December '75

P.R.	
Administration	0.26
Physics	0.54
Chemistry	0.40
Engineering Group	0.54
Arts and Crafts	0.36
Education	0.45
James Cook University	0.75 Adopted for Planning
University of Qld. Av.	0.59
U.Q. Science Complex	1.1
U.Q. Engineering Complex	0.84

Proposed Academic Precinct Ultimate Development

Gross Floor Area 68000 m<sup>2</sup> (Shown on plan)  
 Available Building Site Area 166900 m<sup>2</sup> (Shown on plan)  
 Av. P.R. 0.41

Possible Tertiary Student Population (15m<sup>2</sup>/Student) - 4533  
 Possible Tertiary Student Population (17m<sup>2</sup>/Student) - 4000

If a design plot ratio 0.60 is adopted

Possible Gross Floor Area 101,140 m<sup>2</sup>  
 Possible Tertiary Student Population (15m<sup>2</sup>/Student) - 6742  
 Possible Tertiary Student Population (17m<sup>2</sup>/Student) - 5949

It is a reasonable assessment that 5000 Tertiary Students could be easily accommodated on this site in the area nominated as the Academic Precinct.

A graphical representation of actual and predicted student population is included for discussion by this workshop. The establishment of student population trends would be of considerable value to the Council of this Institute. This is of particular importance at this time of low levels of funding in that it allows for a proper ranking of projects and the establishment of priorities for the expenditure of capital funds.

#### IMPORTANT DECISIONS SINCE NOVEMBER 1974

The following important decisions have flowed from this co-ordination and planning to date :-

1. The Council has been advised on the selection and commissioning of Architects and other Consultants.
2. As Buildings Programme Co-ordinator I have convened and chaired regular meetings with all Architects and Consultants engaged and working on this site. This has proved useful and rewarding.
3. The important areas of the Campus within the three precincts have been set out using a 50 m grid and all services and buildings are now referenced to this grid. Surveys have also been carried out to update contours in the academic precinct. An important advantage of this is the minimising of the disturbance of existing services by future construction. Planning is proceeding to group services in lanes or easements. This planning was at an advanced stage when central chilled water plant was under consideration.
4. The siting of major access roads and minor transportation roads within the Campus has been done. A preliminary car parking study is in progress.

In brief the following major points are evolving :-

- (a) Major student car parks will be located on the periphery of the academic precinct and residential precinct. Where possible these car parks will be enclosed in earth mounds and in general cars will be hidden from view at ground level.
- (b) Minor car parks for staff will be located at each major buildings group
- (c) An internal roads system will be extended from the existing system for servicing buildings and access to minor internal car parks.

Student vehicles should be excluded from this minor road and car park system.

5. The E.R.A. building has been resited to give a Great Court bounded by the Chemistry, Union, Education, Future Education and Humanities and Engineering Buildings.
6. The siting of future Biological Sciences buildings will allow for minor courtyards on the eastern, southern and northern aspects of the E.R.A. building. A site for a future Great Hall is reserved facing one of these Courts and to be visually linked to E.R.A. through this courtyard.
7. Underground services particularly H.V. electricity and stormwater drainage are now designed and 90% complete for the servicing of existing buildings facing the Great Court and with a planned capacity for future enlargement to serve future buildings in this area together with the provision of links to other buildings.
8. Sketch planning of Education and Humanities Building is completed. Some replanning for stage construction will be required when future capital funding is known.
9. Sketch planning of Administration and Residential College buildings extensions has started and is now held in abeyance in common with project 8 above.
10. All weather major road access (gravel only) has been provided from Norman Road to Academic Precinct and from Residential to Academic. An internal minor road and small car park (gravel construction) has been provided from Engineering to the Gymnasium and Pool Area.
11. An all weather (gravel) walking path has been provided from Residential to Academic Precincts.
12. Underground Stormwater Drainage of the Great Court area is under construction. This is Stage I of master drainage scheme for this campus.

All stormwater runoff from buildings and their surrounds and environs is designed to flow to the lake areas. In times of severe drought this will greatly increase the average annual yield of these storages.



13. A Landscape Architect is currently completing a preliminary report which will embody a landscape philosophy for the whole campus and pilot studies and sketches for the Academic Precinct.
14. Earthworks for two new rugby ovals and a combined cricket oval are in an advanced construction stage.

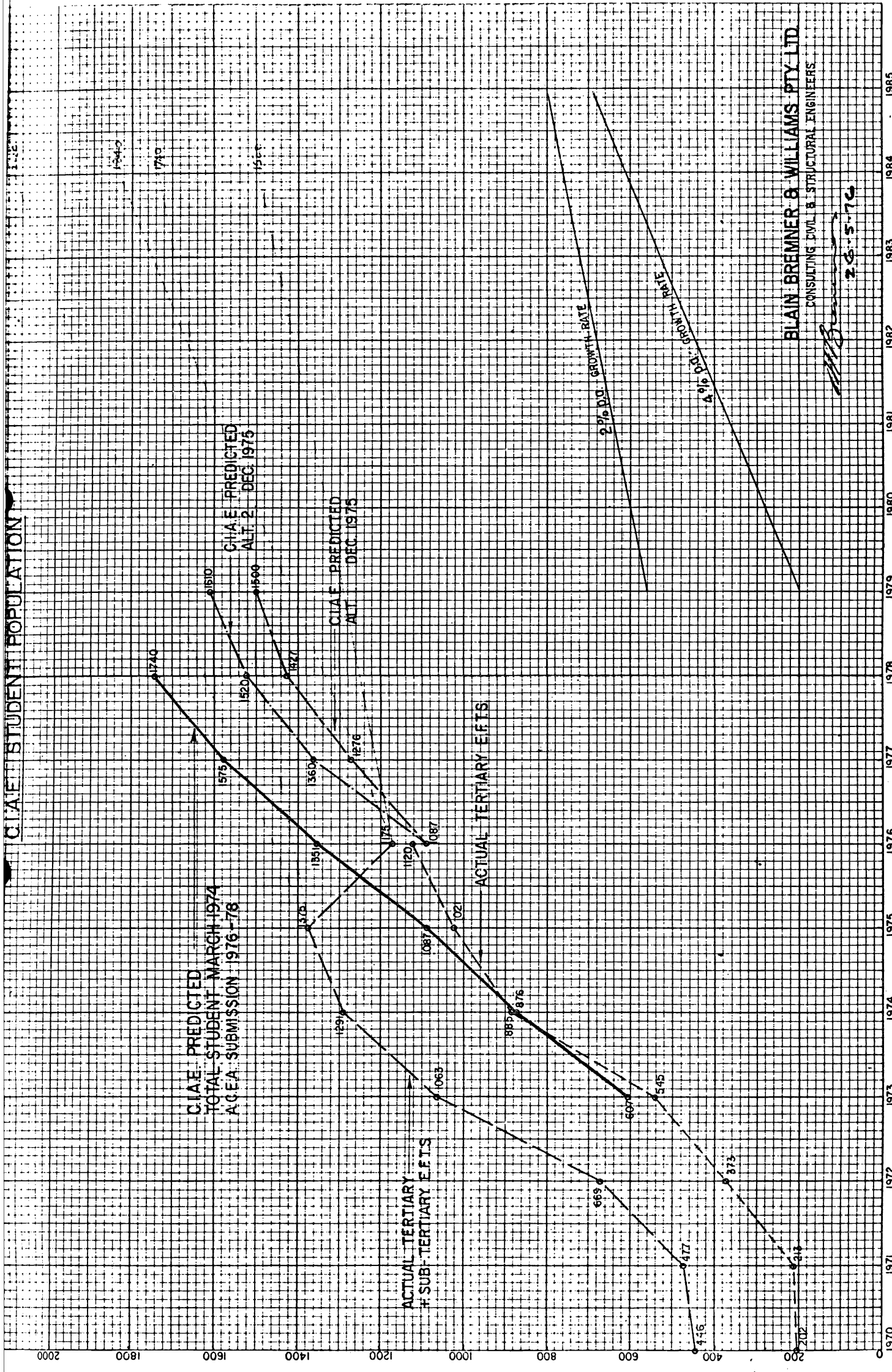
In summary the physical development of this campus is about to undergo a considerable transformation. This we hope will give new life and encouragement to the Council and to those who work and study at this Institute.



W. BREMNER  
for BLAIN, BREMNER & WILLIAMS PTY. LTD.

Rockhampton  
26th May, 1976.

# CIAE STUDENT POPULATION



**BLAIN BREMNER & WILLIAMS PTY LTD**  
 CONSULTING CIVIL & STRUCTURAL ENGINEERS

*[Signature]*  
 28.5.76

Mr. Chairman, Mrs. Bencke, Gentlemen. You don't have a paper from me so you can stop rustling. There are a couple of reasons for this. One of them is personal and the other one is simply that it's a rather difficult subject. I suppose I should have investigated the reasons why you invited me to speak on this particular topic. It's not a topic on education on which I frequently speak. I usually prefer to talk on other subjects. Nevertheless, I found it an interesting challenge. One of the reasons I believe that a paper is not of much value is that in this term one necessarily talks in generalities and reactions tend to be very much subjective. The reason I say to you, talk in generalities, is that there has been very little work done in this area. There are some references which I can give you if you were interested and probably the best known document on the subject is, of course, the Schools Commission Report which was called "Girls' Schools in Society" and that's readily available. I see my role here simply as sorting out some of the issues and possibly trying to get a mental process going amongst those who are here presently. That's one of the great difficulties of the subject. It is subjective and it does require a particular attitude on behalf of the participants in the area of education. Essentially, in trying to make some sort of contribution to what you're doing, I think I would have to say the source of the problem lies with the schools but it is the people in colleges and universities who are going to have to make some effort to cope with the result of the problem. I don't want to give the classic womens' lib. line because I think probably many of you know it. I think we have to be realists about the situation, and I'll leave it to the womens' libbers to talk about things like re-writing the history books to write women into their rightful role in history instead of the neglect that it is asserted that they have faced because nearly all history books are written by men. That's not the sort of line I want to take. I would suggest to you that there is a very real need. The consciousness of the need is fairly recent just as the consciousness of the need in other areas as they particularly relate to women are fairly recent. We can look at some factors which are general in all the manifestations of the so-called problem of women. One of the obvious ones is, of course, in the fact that in the last 100 years, womens' life expectancy has been increased by 25 years. If people are going to live longer and specifically women are going to live that much longer, then they are going to have that much more of life to cope with and the decisions about what they do with life become very much more pointed. A woman's life is no longer automatically taken up with growing up, marrying, child-bearing and rearing of a family with then what was previously an expectation that she didn't have very much longer to live anyway and that was her whole life. There are some other particular factors which start to tie in that sort of source into the educational sphere. We like to link education with jobs in our society. That seems to be a basic premise. Therefore, some very particular results of what has happened in the job area in recent years have had a flow-on to the community's expectations of what the education institutions will do in relation to people and women in particular.

The last 10 to 20 years of course, we've seen a revolution in terms of the numbers of women in the labour force. In 1974 the stage had been reached that 64% of all women in the work force were married women and no matter how much the women's libbers might dislike the fact that you have to give such a strong consideration to a woman's marital status when talking about her role in such areas as education and jobs, that's the real world. The attitudes towards women, community policies which include educational expectations have always overwhelmingly been modified by considerations of what happens to a woman when she marries. Now I said earlier, it seems to me that the schools are creating the problem and its left to the tertiary institutions to pick up that problem and to meet it as best they can. The schools, of course, become outraged when you suggest that they are doing something which is limiting the potential for women to participate in the community. Schools regard themselves as non-sexist institutions. They teach boys and girls and they are not conscious of dealing with them differently. While I don't want to spend a lot of time on schools today because that's not all so very relevant to you. Partly though, I would say I was certain schools are to blame for reasons which I hope are lessening in their importance, but it is very difficult to sort out the schools effect and the blame that lies there for the fact that women aren't reaching, quite obviously, aren't reaching their educational and economic potential in our society with the effect that community attitudes have on the girls themselves at the school and the extent to which those attitudes flow on into the school. As I said at the beginning, the area, as an area of research, is a fairly new one, but there are some conclusions which can now reasonably be drawn in terms of empirical fact so far as we can get empirical fact into the sociological area and I'd like to quote a couple of things to you which come from that Schools Commission Report. As I said, the schools react very strongly to any suggestion that they are sexist and that they would deal differently with girls as against boys but there is one very important factor of sexism in the matter of education and according to the Schools Report. In schools, sexism amounts to the expectations which we all share to a greater or lesser degree that through being either male or female our children will develop certain talents, exhibit certain attitudes or favour certain courses of action. It's an attitude which is generally being discredited. It's an attitude which I think isn't held very strongly in tertiary institutes, but you have to realise the women in the community who are potentially your students have in this real world in 1976, been strongly effected by those sorts of attitudes and you have to take them into account. In another account of the transition from secondary schools to colleges of advanced education, it was found that when asked to rate their performances in each of their three best subjects, females consistently and significantly gave themselves lower ratings than did males, but on average, went on to obtain higher average results in the matriculation examination by about the same margin than they had previously underestimated their performances. Now it's all very interesting but where does it lead us. You have to understand just as other people who are involved with the development of our community the attitude of those who come to you.

If I can give an example from my own area which is a little easier to understand. Some years ago, the federal government set up a re-training scheme for widows. They recognised that there were many women who got past the heaviest area of demand in relation to rearing their children who were in the single parent situation, that many of these women, given the opportunity to train, could go into the community, could be productive, and could add to our community development. It was recognised that many of these women wanted to do precisely that. So the government brought in a special re-training scheme for widows, but they made a fatal mistake. They didn't know the area in which they were dealing. They thought it was a case of female people wanting to be re-trained, presumably with the ability to, therefore we make the opportunity available and they take advantage of it or they don't. A great number of women took advantage of it but dropped out very quickly and when they later wanted to come back into the scheme they found that there was a once-only provision. If you had been accepted into the scheme and dropped out, there were no second chances. Now who ever dreamed up that provision had no understanding of the women for whom the scheme was supposed to have been designed. I won't go into great length about the sort of factors which mean that that group of women at that time were probably highly predisposed to drop out first time round. The fact that they came back a second time probably indicated that they would not drop out and that they were potentially highly motivated in their second attempt. Now you can make all sorts of wrong assumptions in this area. It's a difficult area. You have to understand it. I'm well aware that people involved in tertiary education both universities and colleges are probably the most egalitarian of all the groups in our community in their attitudes towards the male and female persons. There is not a high level of discrimination. There is a general expectation that women will perform as well as men when they are on the academic side at least, and there's certainly a high demand for women to perform as well as men when they're on the academic staff. But you see, that's really irrelevant because those women with whom you work, whom you consider to be your colleagues are in no way typical products of the sort of social factors that operate in our community. Girls are brought up with very definite expectations. If the community expects that they will perform particular responsibilities in the community, those responsibilities relate, of course, overwhelmingly to the child-bearing and child-rearing facility which women seem to have. It's no longer respectable to keep on drawing the line at that point but people flounder and commit all sorts of errors when they decide how they're going to remove the line, how they're going to bring some real effect to bear in that area. Community expectations I mentioned - one thing about girls' expectations. Community expectations vary too. You mentioned just a few minutes ago that you suspected the government had a very particular motive in putting the heavier emphasis on real growth on colleges than on universities. I won't debate that. The facts are, that as a result of that policy, there will be a greater proportion of our tertiary students, male and female, in the colleges rather than in the universities. Can I say to you, that if by 1980 you have consequently grown considerably, I hope it will not have the effect on your attitudes towards your female students that it is having in universities.

As you are well aware, some in the happy position for them, where there is high competition for student places. There are signs of discrimination emerging regardless of this egalitarian academic attitude which previously did not emerge at that level. One particular area in which there have frequently been allegations of discrimination, is of course, Law. For as long as I can remember, female students in the Faculty of Law were there. They had a high drop-out rate and there wasn't much of an expectation that that would change. My own experience of friends doing Law, girl friends, and of universities, was simply that the academic staff, there were a number of them, were highly overtly prejudiced against girls. They did everything they could to discourage them from studying Law. The girls who did undertake the study and persist were subjected to all manner of insult. Now I state that as a broad assertion because I know it to be true. I have witnessed it. It's interesting that those women who were so persistent to go right through the degree after graduating, immediately limited themselves. We have one woman practising at the bar in Queensland today. We have only ever previously had one other woman. The female graduates go through the formality the same as the male graduates as applying for admission to the bar, but then immediately drop off into solicitors offices and that surely is an increasing phenomenon. That's one area of long-standing discrimination and the effect that it can have, the flow-on, in attitudes and professions and the way it can effect those women who persist. A new area of emerging discrimination is, of course, medicine where there is extremely strong competition for places. There have been quotas in medicine for many years at the University of Queensland before there were quotas in any other course at the second year level. There are now also quotas at the first year level and there is no doubt that the discrimination is being practised quite consciously and quite deliberately and in a way which just cannot be defended in terms of actual examination results by the Faculty of Medicine at the University of Queensland. The Dean, a couple of weeks ago made a speech in which he expressed a concern of the medical profession at the increasing proportion of women who were choosing to study that course. Now that's not necessarily a reflection on the Dean, but it could be. The news reports didn't quite go far enough to decide whether it was a personal reflection. He claimed to be expressing the attitudes of the profession. Now medicine was always regarded as one of those areas ideal for women. The bright girls could go in, they could do their examinations and pass. They would then, of course, get married and drop out and have a family, but at least it was the sort of profession where they could come back later according to the conventional wisdom. But that previous conventional wisdom is of very little solace to the girls who are now missing out on the opportunity to do the course at all. Which just goes to show, you can't take anything for granted. Gentlemen, you might have the most egalitarian attitudes towards the girls who are now your students but don't assume that's going to remain your attitude. I certainly don't assume that it's going to remain your attitude. Nevertheless, your problems in 1976 and in the few years to come are of coping with the real world.

Now I said at the beginning I was not going to pursue the womens' libber classic line because it's largely an academic line. They hate me for it, but I insist on talking about the real world. You have to realise that while there are certain ideals in the development of our society, and it is ideal that we regard a woman as just a certain type of person, with potentially the same type of ability, in fact, the conditioning factors are so strong that it is not an assumption you can make in planning your courses or deciding the set-up of your instititon. A few years ago, the University of Queensland decided night-time started at 4.00 p.m. and therefore scheduled its evening classes at 4.00 p.m. Now that was all very well for the young fellows or even young girls who were just out of school, starting off on a job of low paid, low skilled and not very high expectations from their employers. But it was a different case altogether for other groups and for married women, trying to overcome the difficulties of not having taken tertiary education when they first finished their high school. The fact that they had gone on, married and had families, and then were trying to pick up an education and come back in had resulted in them being severely disadvantaged. As far as I'm aware the University of Queensland has shown no sign of repenting its sin of the past. The fact is, that those women with families need somebody to mind the kids and many of them in a part-time situation depend on their husbands coming home from work and being there to look after the family and the children that were home from school. Sadly, nobody even pointed out to the University at the time. I suspect that that was because of the other consideration that those women who tended to sort of come and go in the night and arrived at the University at 6, went to their tutorials, departed at 9 or 10 and went back to their homes, were having no real contact with the University community. They were having no real contact with one another, they couldn't organise their voice, the community didn't think of it in advance when it was decided that night time started at 4.00 p.m. and there wasn't any particularly good way to point out to the University or community that that simple decision was having this terribly important effect on a large body of the community. So I say to you, take nothing for granted. And don't depend on other people to point it out to you. You have to be a little bit smarter in your plans and think of these things for yourself. As I said, I can give you some references. I hope you will read them. All the stuff is eminently readable even if some of it is slightly outrageous, you can at least start turning your mind over on the subject and realise what are all the areas into which you have to project your minds. I had some discussion here last night with George Fairbanks on C.A.E.s and Universities and he pointed out to me that one of the good reasons for giving Arts degrees from a place like Capricornia is because it does make that type of course available to a married woman who cannot travel down to Brisbane and accept her \$31 a week for the rest of the year to undertake the degree at a university. I accept that as valid.



I would suggest to you though, that that sort of argument is no part of the debate on the future roles of C.A.E.s in government or in educational circles in which I am involved. Maybe institutes like yours ought to be pointing it out fairly forcefully to those who are thinking about what is going to be the future roles of C.A.E.s.

You have a very particular responsibility, you have the responsibility of offering education to the community and you have the responsibility for realising that there are women in the community who want to study as well as men. You must also realise that this is still regardless of your cherished egalitarian ideas, this is still essentially a male society. Men have run it, they have structured it. There is the structure and while men go on running it they tend to think in terms of their own experiences, the structure they are used to and the superficial way in which that structure seems to have worked. It's nevertheless up to you to realise that there is a new dimension, that there are all manner of very difficult problems which arise under this heading. You will not find that many women are organised enough to bring all such problems to you that you might expect. You might expect that they should be speaking up for themselves. Simply, I believe there is a very strong obligation on behalf of the educator to do some preliminary research on his own. Simply, ask your female students, particularly your married female students. Many of them will react with shock, a couple will react with scorn, in retrospect and in the long run they will all be pleased you asked and so will you.

## EDUCATION FOR THE DISADVANTAGED

REG SHELLEY - LECTURER IN SOCIAL SCIENCE

---

1. Who are Disadvantaged?

Those people in our community who do not have ready access to the existing forms of education that are available to most members of society, or those who are not able to make use of the educational opportunities offered, are deemed to be at a disadvantage. The following groups are included by this definition: married women, adults generally, handicapped people, migrants, and people who are culturally different.

2. Who are Culturally Different?

The answer to this question, for Central Queensland, is clearly the Aborigines, Torres Strait Islanders & South Sea Islanders. Clearly this Conference if forward-looking, however, a brief over-the-shoulder glance will help us to interpret the present situation in its true perspective.

History provides a harsh indictment against Queensland for its treatment of people who are culturally different. A letter written from New Guinea in April, 1883, at a time when Queensland planters were urging the British Government to make a colony of this strategic island, reads in part:

*We would rather not be annexed by anybody, but if there was any probability of a foreign power taking possession of New Guinea, then let us have British rule: but as a Crown Colony, not as an appendage to Queensland. Nowhere in the world have aborigines been so badly and cruelly treated as in Queensland ... and are the natives of New Guinea to be handed over to the tender mercies of the men who have done these deeds?*

(Biskup et.al. 1968:42)

Queensland's population of Aborigines & Torres Strait Islanders, at the 1971 census, was 31,922 that is 27.53% of the total population (115,951) at that time.

An examination of Queensland's existing tertiary education provisions specially suited to the needs of this culturally different population is minimal and grossly inadequate. The only specific provision is at the North Brisbane College which has a sub-tertiary course to prepare small

groups of Torres Strait Islanders to become teacher's assistants. The Townsville College has a year-long course for experienced teachers, black or white, who are to work in schools with a large Aboriginal or Islander population; a number of colleges have individual subjects entitled Aboriginal Studies, or the like. These subjects are not so much for coloured students, as for white students in order that they may better perceive the interesting and valuable aspects of another culture close at hand.

Queensland's provision does not compare favourably with South Australia, which has a comparatively small population of Aborigines & Islanders (7,299:6.29%). Well established study programmes have been functioning for several years at both the South Australian Institute of Technology and at the Torrens College of Advanced Education. If there lingers on in Queensland some colonial hangover of antipathy or indifference towards people who are culturally different then I suggest that it is time for us, at the Capricornia Institute, to provide a lead and do what we can to rectify this.

3. How Can We Cater Educationally For This Portion Of Our Community?

Coming to the Capricornia Institute after nine years in Papua New Guinea I was puzzled by the relatively small number of Aboriginal & Islander students on campus. My concern was reinforced by a paper read at the 1974 Waigani Seminar, in the University of Papua New Guinea, by an Aboriginal staff member of the Aboriginal Community College, Adelaide. Further impetus was given to the possibility of something developing at Capricornia by Mr. Charles Perkins accepting my invitation to visit our campus late in 1974. The retention rate of culturally different students in our high schools is very depressing. A detailed examination of the drop-out rate amongst Aboriginal & Islander high school students, indicated in the table, clearly suggests that some additional educational opportunity to that provided by the state system is needed to arrest the present high failure rate. The percentage of Aboriginal/Islander students remaining in school to Grade Twelve is one-sixth that of all students remaining.

1975 Queensland High School Enrolments By Grades

Grade	8	9	10	11	12
All students (a)	30353	29726	27272	11017	9056
Percentage Remaining	100	97.9	89.8	36.3	29.8
Aborigines/Islanders (b)	891	733	605	102	51
Percentage Remaining	100	82.3	67.9	11.5	5.7

(a) Enrolment for 1975, not corrected for annual growth, from Education Office Gazette, Vol. 77, No. 11, Nov., 1975, figures as at 1st August, 1975.

(b) Australian Government Education Department, Brisbane supplied figures of scholarship holders at May, 1975.

As a consequence of the need for additional educational opportunities, the concept of the Preliminary Education Programme for Aborigines & Torres Strait Islanders has evolved over the past eighteen months. Its purpose is:

*to provide Aborigines & Torres Strait Islanders with the opportunity to increase their knowledge, competence and learning skills, in order to gain entry to an existing diploma or under-graduate course at a tertiary institution with a reasonable degree of confidence at being able to satisfactorily complete such a course of study.*

(Submission 2.1, p.1)

There is an obvious need for tertiary educated leaders in these culturally different groups, so that they may be better represented in a society which is highly competitive and essentially alien to so many of their cultural values.

This kind of provision is recognised by the Australian Government, in the following terms:

*The Schools Commission Report (1975:142) supports the notion of special 're-entry opportunities, an innovative project associated with Aboriginal education' as a means of rectifying the present lack of participation of Aborigines and Islanders in state education. The proposed Preliminary Education Programme seeks to provide this kind of re-entry opportunity.*

(Submission 3.5 p.2)

These proposals are currently being examined by all tertiary institutions in Queensland in order that they may determine which of their study courses they will grant entry to those Aboriginal/Islander students who satisfactorily complete this programme. Also, it is being carefully examined by the Australian Government Department of Aboriginal Affairs with a

view to forward funding for 1977; I have been advised verbally that this programme has an "A" rating. As long as favourable responses from the tertiary institutions are obtained and the Australian Government's budget permits, the programme will probably commence in 1977. I have been assured that we will have a firm indication one way or the other by mid-August.

Overseas experience with this kind of re-entry programme is very encouraging. Havard University in the U.S.A. has been giving particular attention to the needs of students who are culturally different. Recent advice from Havard of work done by Professor David McClelland, in what they call "Efficacy Programme for Minority Groups", indicates a high success rate.

The National Labour Institute of India is also employing some of McClelland's Achievement Motivation concepts with pleasing results. I understand that the Canadian Government makes special provision for Indian and Eskimo education. Queensland is rather tardy in its provision of suitable tertiary education courses for its culturally different groups.

4. Are There Any Additional Future Possibilities For Expanding Educational Opportunities For Culturally Different Groups in Central Queensland.

Negotiations are underway for a group of staff and students from the School of Education to travel to the Woorabinda Aboriginal Community during the semester break. The purpose of this visit is to present a display of silk screen printing and clay modelling. Some students will also be providing play-reading, music and singing; perhaps others will be going to provide a dramatic performance. This is the beginning of what could, and hopefully will develop into the establishment of a learning-teaching centre at that community, providing materials, some expertize and encouragement to these people to re-develop their considerable talents in the creative arts. Opportunity may, over time, also present itself for the introduction of other subjects of relevance to this isolated community. Discussions held this week with the Brisbane Office of the Australian Government Department of Education suggests that there is a good possibility of finance being available to provide training for a small nucleus of Woorabinda people to help staff a learning-teaching centre of creative arts. I think we can provide this sort of training at the Capricornia Institute.

The Northern Rivers College at Lismore, New South Wales has proposals prepared for a comprehensive programme of Aboriginal Education. It involves the resurrection of local Aboriginal language, art and crafts, etc. Obviously there are opportunities such as these becoming available to us here also. For too long I believe we have been giving our attention almost exclusively to the needs of school leavers, to the neglect of other segments of Central Queensland community. For too long we've been trading on the good nature, the patience, the lack of education or the powerlessness of those people who are culturally different.

Let us seriously attempt by means such as those suggested to rectify past oversights by giving careful consideration to the educational needs of culturally different groups well before 1984.

REFERENCES:

Australian Government, 1975 Schools Commission Report, Canberra:  
Australian Government, 1975.

Biskup, P., Jinks, B., Nelson, H., A Short History of New Guinea, Sydney:  
Angus & Robertson, 1968.

McClelland, D. C., The Achieving Society, New York:  
Free Press, 1961.

Mehta, P., Managing Motivation in Education, Ahmedabad:  
Mudranalaya, 1975.

Queensland State Education Department, Education Office Gazette,  
Vol. 77, No. 11, Nov., 1975.

I think my first duty is to apologise to you for not having notes available since I intended speaking somewhat broadly to them and hopefully to add to them. This is simply because I did not see the programme until Wednesday evening (no fault to anyone) and I prepared the notes on Thursday morning. I hope they'll be available sometime later today. I propose to discuss the role of a college of advanced education through the consideration of the nature of continuing education itself, its functions, students, its place in life-long education and some planning issues. This is a fairly ambitious notion in 10 minutes. Some personal thoughts. 1980 seems to me all too uncomfortably near to think in terms of futuristic planning. I think we can start planning immediately for the next few years. Life-long education in this total context - continuing education - in my judgement is the most neglected area in Australia's educational systems. There is a great deal of interest in continuing education at the present time - massive interest, but I think a great deal of it is ill-motivated. Because colleges of advanced education and universities are not getting the kind of first year student enrolment they want, they are looking to other concerns. This, in my judgement, is about the worst way to go about providing continuing education. The concern I have is that we're facing a rationalisation period when I believe the resources to tertiary education generally will contract rather than expand.

Now what do I mean by continuing education? Generally I refer to the total educational experiences to post-compulsory level, by and large, of a non-credit kind and these can be divided into those that are formal and those that are generally judged to be informal. I should perhaps comment on what I mean by informal educational experiences, art gallery experience, television, radio, etc. This is indirect, informal kind of educational experience. I shall concern myself however, largely with the formal structured experiences. What are the students? I think any educator will tell you that you should begin with consideration of the needs of the students. I suppose by and large they are aged 15 to 75. They have immediate needs. We're not concerned with preparing for some future vocation. Continuing education students have immediate needs which need resolving here and now (or at least they see them in this kind of way). They have a voluntary involvement. Don't be surprised if a continuing education group en toto gets up and walks out if it's not interested in one of the activities you put on. They are volunteer students and they are mature participants who are paying for what they're prepared to use their time on. It's important to find out what arouses their emotions. It's important to find out what choices they make given that kind of situation where they have to make choices. These then, are the kinds of ways one can gauge interests and needs in the field of continuing education though I suspect in any area of the social sciences these sorts of ways or gauging interests apply. We're concerned in brief in continuing education, with the quality of life, perhaps the immediate quality of life. The functions of continuing education are normally regarded as the following:- Firstly, remedial function, by which I mean not just seeing that people are literate but seeing that those who exist



in some unusual, out of the normal situation such as being slightly mentally retarded, people in corrective institutions, the lame, the blind and so on. These are the people who require special continuing education needs of a remedial nature. The vocational scene is another area of continuing education and retraining, refresher or recurrent education (the difference being simply that recurrent education is primarily accredited in a formal way) are the areas which, I feel, we should give greatest attention to at the present time. I think they are more important than the initial preparation period. I would think that the majority of you are teaching from text books which are some 5 to 10 years old, that students now in your first year, by the time they reach their third or fourth year are already in a sense out of date in the profession which they are about to enter. So it is a tremendously important area - the area of retraining, refresher, recurrent education. The notion of professional obsolescence is one which is being given constant attention in the academic field of continuing education at the present time. Then there is liberal or humane education, to make the man a better man or the woman a better woman, a better citizen. Citizenship and political content is my fourth area. I notice there are people voting out here today. They are compelled to vote, and yet I take a small bet that not many of the educational institutions have done very much about seeing that people vote in a responsible way in this state or in fact in any other state. Are we going to leave this to the political parties themselves, to give some kind of objective education of citizenship and responsible decision making?

Continuing education is a self-funding exercise at the present time. In my judgement, it's likely to remain so at least until 1984. It is difficult to gauge what would be the participation of adults in the community if it were otherwise. I've suggested to the Board of Adult Education as the Chairman of its Policy Committee in New South Wales that it should attempt to identify areas. This is difficult enough to judge what in the total content of continuing education should be given priority. My own judgement is that remedial education by which I meant illiteracy and the special education areas should be, at this stage, number one priority. You could argue that at length, for it is a terribly difficult one to come to grips with. It's indeed difficult for people in government to accept that provision of adult education or continuing education in the total field of life-long education should be free simply because they don't know what will be the outcome of offering free education to people from 15 to 75. How they could police such a system, how they could fund such a system which frankly, I think would be much more expensive than our primary, secondary and tertiary systems all together. On the other hand, of course, if we utilize existing resources it would be very, very much less expensive. It's unlikely that these massive funds, then, would be made available so that we have to understand what we mean by continuing education and determine our priorities.

Now in this context, what do I see as the role of a college of advanced education. It would be presumptuous of me to be descriptive in the Capricornia situation as I don't know Rockhampton and I don't know the region and the community needs sufficiently well. Here I suggest we have a multi-million dollar educational establishment. It's serving the community in a fairly well defined region. It has, in my judgement, a moral obligation to use its resources to the full in the development of continuing education. I wouldn't restrain its programme in the field of continuing education in any way whatsoever. I would anticipate that it should initially have a flexible and multi-purpose role and its ultimate role will emerge gradually. It will of course need to examine this role in conjunction with other providing agencies. I want simply, because I've tried to put some thoughts on paper, to say more specifically what this role would be. I see it as in three parts. One to audit the educational needs and interests of the community and to experiment with forms of communication and various kinds of educational programmes to meet these needs. I say that such activities might be arranged at many levels and on or off campus. Secondly, to make available to the community the resources, the total resources, of the institution for the use of people living in this region. Thirdly, and this is a point that I've not laboured in my 10 minute talk but I have covered I think in my paper. To assist those organisations and individuals concerned with continuing education to acquire a better appreciation of their roles. Our latest piece of research in New South Wales is a directory of such agencies in country areas, service organisations, Country Womens' Associations, etc. etc. etc. I suggest this function would include a broad range of activities with voluntary agencies, industrial and commercial organisations and other community bodies, ranging from a low level up to the training and retraining of professional adult educators.

I'd like lastly, Mr. Chairman, to move to consideration of community colleges. I've been on a committee looking at the question of introducing community colleges. There will be two introduced experimentally next year so I've taken the definition of the meaning of community college from the committee's report. I don't care whether it's called a community college or a hotel quite frankly, but so long as it fulfils certain kinds of functions (which seem to me quite reasonable). The community college is an institution planned to provide for educational, cultural and recreational needs of individuals beyond secondary school in defined communities and regions. A community college therefore would be able to provide vocational general studies at a number of levels incorporating initial preparation, refresher and retraining programmes as well as a range of liberal studies and leisure type activities. The principle of open access would be applied by the provision of appropriate counselling and courses for alternative assistance to enable people to move from their present educational systems towards their desired educational goals. I suppose it's that kind of objective that I see as the role of the college of advanced education. Thank you.

NOTES ON THE ROLE OF A COLLEGE OF ADVANCED EDUCATION IN  
CONTINUING EDUCATION in 1984

PREAMBLE

I have not adopted a futuristic approach to planning in these notes because 1984 is too near to indulge in guess-work and also because although the rate of social change must accelerate yet the years immediately before us are likely to present a period of rationalization and contraction rather than of expansion of resources in the field of tertiary education. Nor do I wish to be too prescriptive about the special role of the C.I.A.E. since I am not familiar with Rockhampton and the surrounding region, nor with the educational needs of the community living in this area.

I have attempted rather to answer some of the following questions:-

- (a) What do we mean by Continuing Education and what are its peculiar features?
- (b) What is the present status of Continuing Education in the context of life-long education?
- (c) What are the functions or content of Continuing Education?
- (d) What are some of the considerations we must make in planning for Continuing Education
- (e) In this total context what role might be conceived for a C.A.E.?

THE NATURE OF CONTINUING EDUCATION

In its broadest sense Continuing Education refers to the wide spectrum of educational experiences which influence adults and help meet their various needs and interests. Much continuing education is formal but an increasing proportion these days is informal. In addition, therefore, to such experiences derived from attendance at structured lecture courses or other formally arranged adult education activities, visits to museums, theatres, libraries, art galleries, listening to radio, watching television, reading and other similar experiences all contribute to the education of the adult.

Other learning may come through family life and participation as members of various community organizations, trade unions, churches and organizations that provide educational experiences for adults. Frequently such organizations have no specific educational objective and may be, in some ways, unaware that they are making any educational impact.

In a narrower, more professional sense continuing education is a term used to cover all organized provision for the education of adults. This provision has to date comprised the part-time non credit educational instruction of any kind for people over school-age who are not in full time attendance at some educational institution. e.g. schools, colleges, universities.

I think it will be generally agreed that any consideration of educational provision should begin with a study of the needs and interests of potential students. One useful method of studying needs and interests of adults is through an examination of the changing status and roles and changing value orientations during the adult life cycle. Many of the needs that adults strive to fulfil are closely related to the responsibilities that come with adulthood. Common social roles of interest to the professional in the field of continuing education are worker, parent, spouse, homemaker, citizen, neighbour, friend, club or association member, church member.

Strictly speaking there are perhaps no educational needs if we think of needs as requirements indispensable to existence. It may be argued that any individual could stay alive without reading novels or having access to a reference library, tutorial classes, residential colleges, good music, art, or theatre. Yet the more socially mature a community becomes the more these educational items are demanded. There is a difference between the point of view that regards such provision as vital and that which deems it needed in the sense that it is important to the development of a better society.

### LIFELONG EDUCATION AND THE IMPLICATIONS FOR CONTINUING EDUCATION

The move towards lifelong education received great impetus from the publication of a UNESCO report in 1972 - the Report of the International Commission on the Development of Education. The Report known as the Faure Report and entitled "Learning to Be" recommended that life-long education should be:-

"The master concept for educational policies in the year to come for both developed and developing countries."

The influence of this report is reflected in all major Australian reports on Education published in this country during the last two years. Such documents, for example, as the T.A.F.E., Cochrane and the Open University Reports all explore the means of extending education to more people whatever their age and situation in life.

Lifelong education is an essential response to the rapid rate of technological economic and social change in the world today and the requirements of every community necessitate a greater provision of education so that all people may benefit according to their needs and interests. Educational planners are beginning to challenge the form and content of education and no longer is the concept accepted that education is simply a preparation for life or for any specific job or profession.

Together with the acceptance of life-long education has occurred a general change in attitude in Australia to the status of continuing education. There is, of course, nothing new in the notion that some kind of education provision should be made for people after they have left school. To date such provision tends to have been made for a chosen few who wanted it and were able to afford it. But some revolutionary changes have taken place in the last three decades which have had the effect of democratizing education. In the 1940's each child was given the right to a secondary education. More recently all fees were abolished

for students at tertiary level institutions. Last year a governmental report on pre-school education opened up the possibility of resources being made available for the education of all children of pre-school age. These major changes in our educational systems take us nearer the objective of life-long education which is that all individuals should have access to opportunities for learning from pre-school to death.

At the adult level a number of terms have been introduced to describe systems and objectives which form part of the provision being made for lifelong education. The term "continuing education" in its broadest sense may be said to encompass all kinds of structured educational experiences at the post compulsory level. This definition embraces programmes of retraining, refresher and recurrent education in addition to traditional kinds of adult education activities.

Continuing Education is therefore more than just a new label to make adult education or further education seem more attractive. Although the traditions represented by adult and further education still form an important part of modern continuing education, additional needs have been identified and new kinds of educational activities are being designed to meet them. Such needs include the needs of individuals in the community for skills to improve their enjoyment of leisure time; to increase their sense of personal achievement and their satisfaction in daily living; to improve their grasp of new developments important to them in their work; and to provide them with information and opportunity to understand and to be engaged in meaningful discussion on matters of local or more general consequence.

#### FUNCTIONS OF CONTINUING EDUCATION

The functions of continuing education are, as one might expect, closely related to the educational needs and interests of adults and to the needs of society. There are many methods of categorising the functions of continuing education. Whatever form is adopted considerable

overlapping will occur between categories, but the following are a useful starting point.

(a) Remedial

This form of continuing education is aimed to correct any gap or lack in the education of an adult that would normally have been provided in the regular school system. It includes, for example, lack of basic skills, which may be the result of physical handicap or of socio-economic circumstances. The need for remedial programmes is still very much present in Australia and the extent of need for remedial education has not even been identified adequately in this country. It is likely, too, that given the rapid rate of social change in our society and the fact that our school systems will never be as effective as we would wish, the need for remedial education will be with us for many years to come.

(b) Vocational/Economic

Vocational courses include professional training and management courses, and retraining and refresher education, which are becoming almost as important as initial training programmes. In the last decade it has become much more common for "liberal studies" content (i.e. studies that are not specifically vocationally oriented) to be introduced into vocational courses for general enlightenment and to promote balanced decision-making, better communication and breadth of vision. It is believed that such subject content is important to the training of executives, for example. The TAFE Report of April, 1974 reaffirms this notion and emphasises that the education of technicians and others should also have a liberal basis.

(c) Liberal and Humane

This function is not seen as being opposed to vocational education, although it has a somewhat different emphasis. Its major purpose lies in helping to improve an individual's understanding, his expression, his satisfaction of life, and in making him a more aware and better

person, citizen, parent and family member. It is normal to include artistic and leisure interests as part of the liberal function of continuing education. One unfortunate characteristic in Australia is that liberal education is the form of continuing education which receives minimal support from tax funds.

This is perhaps because it is often considered as an assortment of leisure-time activities, (which is what most people understand by "adult education"), and is the area of continuing education that has drawn most criticism. The foundation for such criticism is that activities of this kind are simply to keep people amused and are of a frivolous nature and not intellectually demanding.

(d) Citizenship and Political

This function of continuing education is concerned with the education of the voter and citizen and with the improvement of his decision-making and competency in society and organisations. It is often described as education for public responsibility. Sir Richard Livingstone has commented "when children are adults and have votes ..... instruction should be provided so that their votes can be used with intelligence." (It is worth considering that if we do not use tax funds to subsidize this function we are leaving education to those who are not objective, i.e. in the hands of political parties, business organisations, etc.)

SOME CONSIDERATIONS IN PLANNING FOR CONTINUING EDUCATION

Some of the more important considerations with implications for planning appear to me to be:

- the existing stage of development of our society. The implication here is that the more complex society becomes, the more sophisticated becomes the pattern of individual educational needs and interests. In a "developing" country there are widespread problems of a universal kind, such as over-population, famine, and illiteracy, which require major national initiatives in programming. India is an example



where the national government must play a major role in initiating programmes of adult education for large sections of that country's population.

Australia, too, has some, though fewer, extensive problems in education which may require initiatives at a national government level to meet the needs of relatively large groups of people, e.g. adult migrants, illiterates, and handicapped people, and possibly those people living in remote areas, who have very poor access to educational opportunities. The majority of continuing education activities, however, will be arranged to meet community needs by agencies geared to work flexibly at a local community level.

• socio economic conditions in the planning environment. Planning for lifelong education is likely to occur on a very gradual scale. Even if a government could make available greatly increased resources for continuing education programmes, other necessary resources would still be scarce for many years to come, e.g. skilled professional adult educators, buildings, equipment. In any case, the attitudes of politicians, which may be said to reflect those of the electors, may not favour massive development in continuing education - at least not at the expense of other governmental activities.

• existing systems of continuing education. It would be absurd to imagine that we can plan realistically for the future of continuing education without paying attention to existing systems. No government could be expected to scrap a system or an institution overnight, nor could that institution's role and functions be transformed overnight. We may have an ideal in mind but the resulting paradigm of provision for continuing education is more likely to reflect compromises between institutions and systems, which may vary considerably from one locality to another in this country.

the time element. It is now commonplace for those engaged in studies of the future to predict and select desirable alternative futures and structure scenarios in keeping with their objectives. There is a degree of guesswork involved in this kind of prediction, yet long term planning, involving an appreciation of long-term objectives, is clearly desirable.

Unfortunately, most of us work in institutional frameworks, where planning is done on a year-to-year basis, or over a fixed period of three to five years. Even then, there is no assurance that we can assume a constant rate of development. (e.g. 1976 has been declared as a one-off year in universities, in which no major development will occur. It is still not known whether the next triennium will begin in 1977).

In these circumstances, perhaps the best that planners can do is to attempt to come to grips with the overall content of continuing education and the needs of adults; to determine these needs in some order of priority and to propose ways and means of utilising existing resources to greater effectiveness and such additional resources as may be acceptable in our socio-economic environment.

#### THE ROLE OF A COLLEGE OF ADVANCED EDUCATION

While schools, technical colleges and universities all have some kind of official backing for their role in continuing education, yet colleges of advanced education, at least in N.S.W., appear to have no support in writing or in substance from their guiding Board in this regard.

About five years ago the Commonwealth Advisory Committee concerning the role of Colleges of Advanced Education noted that:

"We do not consider that colleges should be especially active in the field of adult education defined here as general non-vocational studies for persons of mature age."

It may be said that this provided C.A.E.'s with a charter to enter the field of vocational education. In this context it is important to observe that vocational and liberal are rarely mutually exclusive terms when used to describe continuing education courses. Moreover it is improper to restrict Colleges to offering continuing education programmes for professional people and especially in the case of a college which is developing in a well-knit but isolated community which looks to its C.A.E. for a contribution in the broad area of adult learning.

The absence of any firm guidance on the role of Colleges of Advanced Education in continuing education at least leaves this initiative with individual colleges to identify their role. Certainly any multi-million dollar learning establishment with the educational aims of the C.A.E. has a moral obligation to respond to the educational aspirations of the community it serves.

There are still those who would argue that the role of the college in this field should be spelt out precisely and narrowly believing that the role of any educational institution is one of preparation and adjustment of the individual to society. Conversely I feel that educational institutions must increasingly take initiatives aimed at improving the quality of life of the communities in which they are situated.

Consequently I envisage a flexible and multi-purpose role for a College of Advanced Education and one which will derive from an examination of the educational needs and interests of the people living in a community.

Certainly there is a need for co-operation and rationalisation to ensure that all resources available in a community for the development of continuing education programmes should be used most effectively. But given the almost total neglect of systematic provision in the field of continuing education it would be counter-productive to delimit the role of any C.A.E. at this time.

More specifically I would anticipate that Colleges of Advanced Education would give their attention to the following aspects of continuing education:

- (a) auditing the educational needs and interests of a community and experimenting with forms of communication and varying kinds of educational programmes to meet these needs. Such activities may be arranged at many levels and on or off campus.
- (b) making available the resources of the institution which would include the physical and human resources, research findings, etc. for the use of people living in the community.
- (c) assisting those organisations and individuals concerned with continuing education to acquire a better appreciation of and to improve their role. This function would include the broad range of activities with voluntary agencies, industrial and commercial organisations and other community bodies to the training and retraining of professional adult educators.

S. J. Roeth

## EDUCATING INTERNATIONAL STUDENTS

D. L. BRADLEY  
A.D.A.A.

### INTRODUCTION

International students are presently in Australia as part of an interchange program which has been going on in the world probably since before Moses crossed the Red Sea to attend the University of the Wilderness. Wherever knowledge has been concentrated people have travelled to participate and return to spread the new knowledge. Scholars have always been part of a mobile group.

In more recent times the movement was from colonial areas to the centre in Europe - a process to facilitate administration perhaps. Later as prestige and power of U.S. rose there was significant movement towards the Western Hemisphere. Now it is global. The idea of Technical Assistance is universal and the trend since World War II, though more structured in part, is a logical continuation of the historical fact.

These students would now be regarded as Private Students who pay their own way and return home on completion as a general rule. Our students form another category - Sponsored Students but the majority still are to be found in the former category.

Sponsored students are placed in academic institutions - supervised by the Government which is also responsible for their general welfare. The private student, as I mentioned previously, pays his own way, does not see himself as part of an aid program, is loosely supervised by Education, and receives welfare care from A.D.A.A.

Aid generally fits into 2 areas - Bilateral (Government to Government) and Multilateral (via an international organisation e.g. U.N.) Let us look briefly at the schemes concerned.

<u>Bilateral</u>		<u>Multilateral</u>
CP	Asia	UN/FAO
SPAP	Pacific	
SCAAP	Africa	WHO
APETS	P.N.G.	ILO
AIAS	Other developing	
CCE )	Commonwealth	etc.
CSFP		

Whatever means may be used by the students to facilitate their sojourn in Australia, there are various requirements which are of importance to them and to their institutions after arrival. Let us look briefly at a few of these.

#### 1. Rationale

Many reasons have been put forward by Assistance agencies throughout the world of having International students in their midst. As far as I can see the various institutions go along with them. Recently in U.S. there has been more said in this regard and firm recommendations have been made to institutions to develop a policy covering the admission of such students and to set it out clearly.

This is particularly so as the concept of aid changes from the donor-recipient idea to that of equal partners involved in cultural exchange.

One developed by Kentucky University in 1971 may be of interest.

"Education to prepare people for effectively contributing to the development of a relatively harmonious society and for bringing productive and purposeful lives in it must be redirected to recognize the plurality of diverse cultures in the world, the existence of common concerns, and the need for a more effective mechanism of international and intercultural cooperation. To meet this challenge the education system of all societies will need to develop and disseminate new knowledge of new purposes, to reorient attitudes, values and conceptual understandings, and to develop new abilities to harmonize human relations and to apply professional skills in new situations."

## 2. Orientation

Each institution provides some type of program to facilitate entry of students. These are of course developed on the basis that the students generally will have much the same academic and cultural background. This is not completely true as many prospective students from rural areas will probably have different needs from the local area.

There would also be need of special consideration of the International Student suddenly adrift in an alien cultural environment, and whose condition is probably aggravated by having to study at the pinnacle of a strange educational system in a language that may not be the language of his previous instruction.

I would suggest that a special orientation is needed of International Students which complements and includes the 'normal' orientation program. One suggestion that has been made is of a preliminary semester which serves as an extended orientation period and includes items of importance to a newcomer, viz. a course of English to include idiomatic and technical language, course work dealing with a major aspect of the course, time to orientate to the ways of the institution and the community, and to get his ear tuned to the strange speech pattern and rhythm. He should then be more than ready to commence his program and will not be under the same disadvantage as is often now the case.

## 3. Financial Support

Sponsored students are financially secure. Private students are not all the children of fabulously rich parents and they may need financial support. At present few sources are available and the Voluntary Association has only limited amounts. Perhaps consideration of this could be given as the students are not completely receivers. Admittedly places are made available to them at cost to the taxpayer and estimated at some 10 million dollars annually. However, these 10,000 private students would use some 3,000 each per year to support themselves so that, on these figures, there would be a gain to Australia of some 20 million dollars. As this money comes from outside Australia it would seem to represent a reasonable balance of payments.

#### 4. Support

The present systems of welfare support offered by the Government seem to me, in my biased way, quite reasonable. As things stand the Agency does all the work of the F.S.A. in U.S.A. and is also able to liaise directly with other Government Departments and with the foreign governments concerned

He also liaises with the various areas of the Institution and perhaps the concept of academic advisors from the staff and mentors from the student body would be worth considering on the academic side while positive liaison with the local welfare Committee could ensure that an appropriate host family was provided for those who wanted one as a surrogate for the extended family whose omnipresent support has now been lost. We must always remember that they are generally young people with most of the problems of young people in our own society but suddenly bereft of all the different types of support they have learned to rely upon. Misconception about behavioural cues are sure to arise.

Courses could also be structured with a view to the requirements of the third world countries concerned. This may be a bit much to expect but perhaps it is feasible to consider a final semester in which the material learned is applied to the types of problems found at home and in which the student is prepared for the problems of re-entry to his home culture. At present there seems to be too much abruptness about both commencement and finalization.

In summary then the following points could be considered -

- (1) statement of a policy
- (2) carefully structured orientation program  
over extended period
- (3) financial support
- (4) academic advisors and mentors with close liaison  
with community resources through the local  
welfare association
- (5) "withdrawal" semester.

SUMMARY SHEET.

D.L. BRADLEY,  
A.D.A.A.

INTRODUCTION:

International students have been found throughout history. More recently the knowledge migration was found within colonial empires but now the concept is global. There have been private students and we have now added the term sponsored student under bilateral and multilateral aid schemes.

The presence of International Students raises issues requiring careful consideration by the academic institutions involved. Does it have a definite philosophy behind its acceptance of International Students? If so is it clearly stated and effectively administered through, say, a sufficiently senior interdepartmental committee?

Thought could be given to the needs of these students and to the development of an orientation program which meets them. Perhaps variations to course length and structure should be made and perhaps too, careful consideration could be given to the development of academic advisors and mentors. Close liaison with the local voluntary association could also benefit the student by providing surrogate family support.

Financial support may be an essential aspect for Private Students who assist the "Balance of Payments".



## STATE HIGHER EDUCATION PLANNING

These notes have been prepared in the form of a series of explicit statements with as little qualification as possible. They represent a set of personal predictions and judgments rather than a synthesis of Board of Advanced Education policies or planning decisions. Some are near axiomatic; others may be the subject of debate. The aim is to try to describe an evolving environment of advanced education as a background for the CIAE planning workshop, "The Institute in 1984".

The statements are under five broad headings which proceed from the general to the particular.

### 1. General

- 1.1 Planning in all sectors of education will take place against a background of revised population projections which represent substantial reductions on previous estimates.
- 1.2 Advanced Education will continue as a distinct component in post-secondary education in Australia.
- 1.3 The interfaces between the advanced education and university sectors, and between the advanced education and the technical and further education sectors will increase in extent and complexity.
- 1.4 All, or nearly all, universities will embrace, to some extent, the advanced education ethic. Some, especially in regional, i.e. non-metropolitan, settings will do so to a considerable extent.
- 1.5 Technical and further education institutions will seek progressively to extend their academic programs to include a number of UG3 courses in particular fields, but with very rare exceptions will not extend their programs further to UG2 courses.
- 1.6 The broad range of courses offered by advanced education colleges will continue predominantly to embrace the range UG3 to PG2.
- 1.7 The extent of the involvement of advanced education colleges in sub-tertiary (certificate) programs will decline.
- 1.8 The advanced education sector will seek to maintain supervisory, assessment and accreditation responsibility for advanced education courses offered in technical and further education colleges.

## 2.

- 1.9 "Community" colleges are unlikely to proliferate. Universities, advanced education and technical and further education colleges will provide a range of "community" programs to meet local, short-term wants and needs.
- 1.10 Post-experience, upgrading, updating and career-change programs will become a more important feature of the advanced education sector.
- 1.11 Pre-service courses will be seen as providing a ticket-of-entry rather than as meeting the total academic requirements for the entry to the professions and para-professions which will increase in number and embrace more fields of work.
- 1.12 External studies, assisted by an increasing range of electronic and other teaching-at-a-distance techniques, will increase in relative importance.

## 2. Numbers of Institutions

- 2.1 The number of universities as at present conceived will not increase.
- 2.2 The number of colleges of advanced education will initially decrease through amalgamations and then rise to about their present number.
- 2.3 Amalgamations are more likely to proceed between colleges than between colleges and universities, except in a limited number of particular regional settings. The Deakin University model is unlikely to be repeated.
- 2.4 Some of the larger multi-purpose colleges will achieve a status and a degree of autonomy not much different from the larger universities, but will not become universities.
- 2.5 Some larger multi-purpose colleges in metropolitan areas will begin the partial or total budding-off of certain courses to other colleges.
- 2.6 In Queensland, Townsville College of Advanced Education will develop a closer working association with James Cook University of North Queensland, and Brisbane Kindergarten Teachers College with Kelvin Grove College of Advanced Education; in some circumstances, mergers may result. Mount Gravatt College of Advanced Education and Kelvin Grove College of Advanced Education will be the principal colleges of teacher education in the State. North Brisbane College of Advanced Education will diversify into non-technological fields other than teacher education either through new initiatives or by

### 3.

partial or total budding-off of certain courses from other colleges.

- 2.7 The Gold Coast College of Advanced Education is unlikely to eventuate as a separate institution. Some advanced education programs will, however, be provided through a Gold Coast College of Technical and Further Education.
- 2.8 Any perceived need for a second technological campus in the Brisbane metropolitan area will initially be met by a sub-campus of Queensland Institute of Technology.
- 2.9 The increasing demand for professional and para-professional training in the health and human welfare field will be met either by grafting these activities on to existing colleges or by the establishment of a new college specializing in these areas.

### 3. Finance

- 3.1 The provision of recurrent funds for advanced education, whether solely by the Commonwealth or by State and Commonwealth, will display a long term growth trend of *ca* 3% per annum in real terms.
- 3.2 If the Commonwealth continues to dominate the funding of recurrent expenditure, Queensland in the short term will do marginally better than the national average.
- 3.3 It will be at least a decade before Queensland closely approaches the national average in participation rates in advanced education.
- 3.4 The provision of capital funds, especially for buildings, will lag substantially behind assessed needs.
- 3.5 In the allocation of capital funds, an advantage will be with multipurpose colleges which have reached an arbitrary notional self-generating and sustaining size, (possibly EFTS of 3000-4000). Small single purpose colleges will be accorded a lower priority by funding bodies.
- 3.6 Agricultural colleges will be progressively expected to contribute to their operating costs from their farming and other potentially commercial operations.

#### 4. Organization

- 4.1 The Commonwealth Government will continue to be a major party in the organization of advanced education.
- 4.2 The Commonwealth's role will be exercised either through a separate commission on advanced education, or commissions on tertiary education or post-secondary education.
- 4.3 Technical and further education will be supported financially by the Commonwealth Government in a manner different from that for advanced education and universities.
- 4.4 Increasing attention will be given by funding authorities to issues of co-ordination and the prevention of duplication and overlapping, real or apparent.
- 4.5 The universities will be called upon to approach more closely the course co-ordination and accountability arrangements commonly adopted in the advanced education sector.
- 4.6 State co-ordinating bodies broadly in the model of the Board of Advanced Education, will continue to exist with powers and functions substantially similar to those currently existing. Given powers of delegation, the Board will progressively delegate some of its current powers and functions selectively to particular colleges, as they grow in stature and maturity.
- 4.7 Some formal bilateral or multilateral machinery will be established at the State and Commonwealth levels to increase the co-ordination capability between the three components of post-secondary education. State arrangements will not necessarily match those at the Commonwealth level.

#### 5. Some Special Issues

- 5.1 Darling Downs Institute of Advanced Education and Capricornia Institute of Advanced Education will continue as distinctive institutions in the Queensland system of advanced education as multipurpose non-metropolitan colleges engaged in the fields of engineering, applied science, business, liberal arts and teacher education. There is little prospect of further colleges of this kind being established in other centres, in the foreseeable future.

5.

5.2 The following are seen as the principal future objectives of these two colleges:

- (a) to increase the current total enrolment as rapidly as practicable within the resources available to tertiary EFTS of *ca* 3000 in the four fields other than teacher education noted above.
- (b) Darling Downs Institute of Advanced and Capricornia Institute of Advanced Education on an agreed basis, between them and the Board of Advanced Education, by field of study and/or region, accept the major responsibility for developing external studies in the four existing fields other than teacher education in non-metropolitan Queensland with special reference to such centres as Cairns, Mackay, Mount Isa, Wide Bay-Burnett and in north and central Queensland generally.
- (c) Darling Downs Institute of Advanced Education and Capricornia Institute of Advanced Education participate in external studies in teacher education within an agreed overall State framework.
- (d) Darling Downs Institute of Advanced Education and Capricornia Institute of Advanced Education exercise on an agreed basis supervisory responsibility for UG3 courses in their relevant fields offered in non-metropolitan TAFE colleges.
- (e) DDIAE and CIAE jointly seek to identify possible new fields of endeavour, being either peripherally related to existing programs or being wholly new initiatives relevant to their individual regions, the broader non-metropolitan role noted above, and to perceived future needs of the State.

J.A. ALLEN

26/5/76

Statewide increases in recurrent funds for C.A.E.'s will amount to 5% in real terms between now and 1984.

The primary catchment area for internal offerings of the C.I.A.E. is from Bundaberg in the south, north to Townsville and west to the border.

The primary catchment area for the C.I.A.E. external offerings consists of the entire state of Queensland.

Recurrent funding will coincide with the increase in enrolment, again 5% in real terms. The other economic assumption is that the development of Queensland will continue with the same industrial mix creating new opportunities as it has in the last fifteen years. Basically, we mean that the increments in industrial development will be in the same sectors as the increments in the past. They will be in coal, alumina, aluminium and areas such as this and in the supporting services.

For the opportunities that we have identified, we would like to have been able to quantify them but unfortunately it was impossible. Firstly, an increasing proportion of females will be enrolling by 1984 within the Institute. We tried to break these up into immediate post-high school and more mature, but couldn't. But we do agree that there will be an increase in the proportion of females enrolled by 1984. Secondly, there will be good prospects for continuing education and by continuing education we mean John Rooth's definition of non-certificate continuing education. We also believe that there are good prospects for change of career, recycling, upwardly mobile types of education, that is for people who are changing careers or at a stage in their career where they're looking for knowledge in the discipline which they already have or in a different discipline. We believe that there will be considerable opportunity in this area.

Thirdly, for the disadvantaged; the opportunity here is for approximately 50 to 100 students in a pre-tertiary type of course and that is ti. Fourthly, there are quite a few opportunities in the local government area but we didn't get specific on them because of lack of time. I was thinking of social development, the opportunities to assist local councils, consulting opportunities and a variety of others, but in fact there was so many that it would take too long to speak about them.

From a priorities point of view we had lots of very interesting input from our visitors establishing our assumptions, but unfortunately the cost was measured in terms of time. We did rather run out of time and we just got into priorities and we haven't ranked them. Basically what we have is one - its an objective which isn't ranked so really it isn't a priority; and is an objective in the area of personnel, basically academic personnel and that is

the establishment of flexibility in that there would be adaptability on the part of academics so that we wouldn't have a situation where the academics are locked into a particular discipline or a particular department. In fact we accept the presentation of the P.S.S. on flexibility. And that's as far as we got unfortunately.

PARTICIPANTS:

Mr. B. Gates (Chairman)  
Dr. R. Boothroyd  
Dr. I. Gasson  
Dr. G. Williams  
Mr. D. Woodcroft

Group 2 discussed a wide range of topics. It was thought desirable to go back about ten years in history and look at the Martin Committee's assumptions which led to the foundation of the colleges of advanced education. There seemed to be general agreement within the group that the distinction drawn between vocational education, allegedly being neglected by universities, and theoretical education, the preserve of the universities, is not nearly so clear as previously thought to be. The two systems of tertiary education will continue, but with considerable overlap.

We also looked at the question of specialist versus generalist education; and I think that there was a consensus that we have to strike a happy medium - but that we should not be too narrow in the training of specialists, because this would be creating job obsolescence in the rapid changing times in which we live. Therefore, what we are aiming to produce is the thinking generalist. The person with that sort of foundation along with some specialist expertise would be able to adapt to changing circumstances.

We moved on from there to discussing the perennial question of whether or not research activity should be undertaken in institutes such as ours. It was argued that this question no longer needed to be thrashed out, that it was accepted or should be accepted that applied research with a community orientation was an important part of the activities of our Institute and other colleges of advanced education. That were such research not to go on, academic staff would not be teaching to the best of their abilities, because they would be out of touch with developments in their own fields; that students would not be receiving the maximum benefit available, and furthermore that we would be neglecting opportunities to serve the community.

This led to discussion about the future of the Capricornia Institute in times when academic staff throughout Australia look at developments at colleges in Hobart, Geelong, Melbourne and elsewhere and see serious problems and an uncertain future. I believe that there was a consensus within the group that the Capricornia Institute has a bright future, not only because of the commitment of the staff and the quality of the courses offered, but also because of the happy accident that we have no geographical rivals. We serve a region which is more or less "our own patch"; our nearest "territorial threats" are far away in Brisbane and Townsville.

There was some discussion about policies for the admission of students and also what happens to our graduates. Again, I think there was broad agreement that we have a responsibility to serve the region and that this



is our first priority, but that we best serve our region by not only having a cosmopolitan academic staff drawn from around the world but also a cosmopolitan student body. We ought not to have any strict regional barriers which would prevent the "dreaded southerners" from coming to Rockhampton, and indeed we should always welcome a small but significant number of interstate and overseas students.

The question arose, would we be failing to serve the community as we should if a proportion of our graduates left the region never to return. Our opinion was that after all graduates from the University of Queensland serve in many parts of Australia and overseas and our graduates will do the same. But it was pointed out by one member of the group that surveys show that a student in a provincial area such as ours, who attends a local institute rather than going to a metropolitan university, is more likely to remain within the region or to come back to the region than a student who goes to the "big smoke" and is dazzled by the "seductive attractions" of the metropolis.

It was recognized, however, that we have a job in explaining Institute policies to the community. The notion that there are community and educational benefits to be had from enrolling students from outside the region, outside the state and outside of Australia needs to be stressed. Some members of the public may complain that some graduates leave the region, and assert that if this happens the Institute is not doing its job. We have a problem of community relations that we must grapple with.

We then looked more specifically at some of the problems that we face this year and in the immediate future at the Capricornia Institute. We considered for example, the School of Education and its relationship to the other Schools in the Institute. The question of integration arose and it was noted that some steps towards combining subjects and lectures were taking place in 1976. The comment was made that much more progress needed to be made in this direction.

We examined the question being faced at the moment by the School of Science and, to a lesser extent, by the School of Engineering - namely the number of students available and whether or not the proportion of resources allocated is fair in the circumstances. It was unanimously agreed within the group that Schools of Science and Engineering at the Institute are valuable assets - something to be proud of. There was no suggestion at all within the group that because of the high cost factor there should be any thought whatever of dispensing with Science and Engineering and contracting from a multi-discipline institute to a single purpose college. At the same time it was admitted that questions on

reorganisation and reallocation of resources would have to be kept under constant review. It was the general expression that we should continue to try to foster an Institute-mindedness amongst everyone: senior and junior staff, as well as students. Occasionally some members of the Institute, perhaps all of us at one time or another, have been guilty of being excessively departmentally-minded and not sufficiently Institute-minded.

The final comments within our group had to do with communications both internally and externally. The remark was made that at the senior staff level in the Institute there is, or ought to be, a knowledge of what is going on and an understanding of the issues. But somehow many staff members seem to be ignorant of current developments - which leads to jealousies, faction-fighting and the like - all of which we could do without. It appears that some bottlenecks may exist at Head of Department level, as important information often is not transmitted to the other members of the Department. This suggests that more lines of communication have to be opened up. I would hope that the proceedings of this conference will be circulated in a condensed form, and that this will encourage the ongoing Institute-wide debate on how we should be organising and preparing ourselves for the future.

PARTICIPANTS:

Mr. G. Fairbanks (Chairman)  
Dr. A. Appleton  
Mr. B. Hiskens  
Dr. A. Osborn  
Mr. N. Price  
Mr. R. Stockwell

Group 3 had a very interesting time. We divided our time roughly equally between looking at assumptions and establishing priorities for the future, based on the assumptions. The first group covered most of the assumptions that we had made so I'll only add one or two comments that were not included in the assumptions expressed by the first speaker.

We believed that the catchment area of the C.I.A.E. also includes overseas countries as well as the local area, and Queensland generally. We also felt that we wouldn't wish to tie ourselves to 1984 very specifically. We believed that we were in a growth area, that the Institute numbers would grow, and that we should get to 2,000 or 2,500 as soon as we possibly could to make the Institution far more of an economical unit. So we would prefer to believe that funding would more or less keep pace with the level of growth and that the actual numbers of students whether they be 1,750 or 2,000 E.F.T.S. by 1984 wouldn't have a terribly significant effect on the kind of institution that C.I.A.E. would be. We felt that this was particularly so because when we looked at the likely demand for our courses we felt that there would be really no significant new demand areas, and that the areas of Arts, Business, Engineering, Science and Education would be the areas in which the Institute would continue to operate. We believed that Arts and Business would find it easy to grow provided that funding was available. We believed that Science and Engineering would find it less easy to grow but would continue to grow and we believed that they should be encouraged to grow. We believed that Education would find it difficult to grow. We felt that the growth areas were probably greatest in U.G.3 courses and in P.G.1 courses, that the U.G.3, P.G.1 courses should be in the same general areas as the U.G.2 or U.G.1 courses, that both U.G. 3 and P.G.1 courses would offer specialist areas of study and that P.G.1 courses could reasonably be offered in all the disciplines presently taught at C.I.A.E., i.e. arts, business, education, engineering and science.

But the further possibility would exist that many people would be requiring some form of retraining as they moved from specialist technological jobs, such as Science or Engineering graduates would have for the first 8 or 10 years of their working lives, to higher supervisory and managerial roles for which they would require a strong component of management training, and for which our Graduate Diploma in Management course would be relevant. Although I was chairman of this group I was the only business educator. It wasn't just my idea that post-graduate management training would be very important. It was very widely held by the group as being a really important growth area.

We believed that the role of C.I.A.E. would continue to be in the areas of teaching and research, professional training, of continuing education and of general community services. From this we began to look then at the priorities that we would adopt in trying to reach the kind of institution that

I'd described above that should exist by 1984 or some time in the future. We did not order these in any special way, we merely listed the kinds of priorities that we think are important. We spent most of our time, though, looking at the marketing function, as a very important priority. We felt that if we were going to grow it would not happen naturally, that growth would occur only by a very deliberate and cleverly planned marketing exercise directed to the areas where we could readily identify growth potential, i.e. in the U.G.3 areas in Science and Engineering and possibly in Business, and in P.G.1 areas especially in business, and that the marketing effort should attempt to get the student numbers up to a more economical level for the Institute as a whole.

In Science and Engineering we felt that manpower planning should not be attempted at all. It had failed dismally in most countries overseas; instead of manpower planning we should mainly let the market determine what kinds of students we produce. Our courses could be designed to react quickly and easily to market pressures if we allowed both generalist subject offerings as well as specialist subject offerings within each of the courses that we taught. Although we should not try to preempt the demand in general, it was agreed that in Education where there is basically only one kind of employer and the market can be more precisely determined by means of demographic trends, it might well be necessary to curtail activities in accordance with the advice of the employing authorities.

We felt that post-graduate Business education would be especially relevant in the areas of local and regional government and regional services as we had heard earlier from Mr. Brown this morning, that maybe that area would be a greater growth area not only in business but in all disciplines than the areas in which our graduates are going to now. We felt that the marketing exercise had also to go back into the schools and we found we had a real problem there as to whether we should tell children in schools what they should study and try to convince the school system to try to produce as their output the kind of input that we require. We found this was a very difficult area, but it did lead us to consider very carefully whether we should have a different kind of input requirement to our own courses. Would it be desirable to restructure, especially our Science and Engineering courses in such a way that people who wanted to be engineers, but who didn't have the right pre-requisite studies in mathematics and science, might be able to strengthen their mathematics and science component in the early years of their diploma or degree course at C.I.A.E. and perhaps undertake some general studies at that stage, and then be ready in the second semester or maybe in their second year, depending on their preparation to go on with the formal programme that would give them an Applied Science or Engineering qualification. We felt that this would help to increase our intake. A further question raised was whether we should introduce a preliminary year or a preliminary semester to make good deficiencies in a

student's secondary school studies prior to his admission to his formal C.I.A.E. course. Such an approach would also benefit ethnic or other disadvantaged entrants.

We felt that a placement service was probably also necessary for our output and especially now that output is growing probably at such a rate that even our better graduates might find difficulties in obtaining satisfactory employment. So we felt then that the marketing exercise had to be related to the input level and the output level and we felt that we should concentrate on the areas that we believed were the natural growth areas rather than to try to break new ground and seek new markets, except maybe in the areas of ecology and biology which have not been fully explored to date.

Further development of our market outside the region we saw through external studies. We looked at the possibility of attracting more people from overseas. We were very grateful of the advice we received from Mr. Bradley, but felt that although there could well be a useful market for both external courses or for bringing people to our campus, the actual growth in overseas students would not in the foreseeable future become a very significant part of our overall numbers (by the end of the decade not more than 50 overseas students). Nonetheless we felt that we should encourage the growth of overseas students on our campus, or as external students, because of the added richness to be gained on campus with increased numbers of students from other cultures. If we were to introduce new subject offerings by means of external studies, or recruit internal students from greater distances to Rockhampton, there would be a need for greatly expanded residential facilities.

We considered there would be a need for high level teaching and residential facilities, especially to cater for increasing numbers of continuing education students, (many of whom would be professional people requiring some form of retraining, and who would expect similar quality facilities to those they enjoyed in their workplaces) rather than simple class rooms and simple residential accommodation normally provided for undergraduate students.

So this led us then into the discussion of the importance of continuing education and external studies in C.I.A.E. We agreed that continuing education was very important in our establishing and maintaining a further identity with our community. Not only would we be adding to the numbers of people on campus, with new funding arrangements such students might even be included as part of our normal E.F.T.S. But even if that were not possible the presence of different kinds of people on campus would enrich campus life. We considered the possibilities that we heard from Mr. Rooth on the opportunities for integration of students on the New England campus, people from industry or people from outside being able to join with internal students in extra curricular activities

- providing opportunities for cross-fertilization of ideas; also the variety of activities that could go on concurrently and which would influence internal students and other continuing education students to take more notice of the variety of subject areas or activities that other people came there for; for example a scientist might become interested in a music seminar or a drama group beyond his normal experience.

But overall we felt that continuing education would provide the staff with the opportunity of becoming involved in a different kind of teaching service, for students with entirely different attitudes and responsibilities. This leads me to mention another point that I had neglected earlier. Our overall expansion in student numbers in formal courses we expected would be less in terms of full-time, 17-20 year old students and more in terms of mature age people including both married women doing courses on campus and by external study.

The continuing education input, then, we believed, would be an especially valuable part of the "community college" role of C.I.A.E. Although I have argued very strongly against using that term, we as a group believed in the necessity of the involvement of the community in the college and the reverse, the college in the community. Expertise for teaching and administration of external studies seemed to be related to the kind of expertise we would need in conducting continuing and adult education programmes.

Towards the end of our discussion period we considered whether one high level appointee might be able to provide for this great variety of teaching needs for short courses, retraining and updating courses and qualification courses for both internal students and for people who are studying a long way from the campus. We believe therefore that the kind of skills needed to run an external studies department are probably not unrelated to the kind of skills that would be necessary to run continuing education services. Should we consider combining these two functions in one high level appointment?

We also looked at the important role of research and development on campus. We felt that teaching on campus would be greatly enlivened by further consulting activity and further research and development activity and that good teaching really was inseparable from a high level of research and continuing involvement with the profession that we were serving through our teaching function. We also felt that research and development along with continuing education and along with selling our service as an Institute overall should probably be the concern of some kind of liaison person. Thus it seemed to us that both industrial liaison and schools liaison activity were essential functions, marketing on the one hand

generating new markets for our courses, i.e. encouraging more people to study our courses and bring problems to us for solution, and on the other hand generating new job opportunities for our graduates.

I think that sums up our group's discussions as well as I can do in the time, Mr. Chairman.

PARTICIPANTS:

Mr. J. Carkeek (Chairman)  
Mr. B. Bartley  
Mrs. T. Bencke  
Mr. W. Grigg  
Mr. J. Smith

Mr. Chairman, ladies and gentlemen. A point of explanation of how we proceeded. Because of the substance and the considerable thought that had been put into the papers that were presented this morning we began by going through each of the papers. We selected what we regarded as the major issues. There were at least forty-five of them. We then intended to discuss these issues and to relate them to the assumptions which were relevant to the issues. This became quite a daunting exercise especially as at least some of us in the group are professional windbags. Which leads me to another point. It is obvious how our colleagues and peers perceive us in the School of Administrative and General Studies. It is obvious when you considered the selection of spokesmen for this evening's group reporting we are regarded as professional windbags because as it happens the spokesmen are all from the School of Administrative and General Studies.

In our deliberations we narrowed down the long list to eight issues which we examined. Some of these have already been covered by other speakers. I don't intend to keep this meeting unduly by covering them again except just to make one brief observation. We were very mindful when we were considering demographic predictions that all our available data was, to say the least, suspect. We agreed that our material was imprecise and should be viewed in this light. As a tentative conclusion however, it was our hunch that we'd be wildly optimistic to be thinking in terms of total figures much in excess of 2,000 E.F.T.S. by 1984.

We agree with Bruce Gates' group that there could be an increasing proportion of female students, many of whom will be adult entrants. This raised quite a number of implications, some of which Senator Martin alluded to this morning. We agreed that we should think in terms of the specific needs and circumstances of each student. In the case of the woman student with children, we should consider how the demands on her time and energy in home tasks and responsibilities may influence her progress as a student. Indeed, mature age students, men and women, may well have strong but misconceived assessments of their ability to cope successfully with tertiary studies. The evidence we have suggests that generally mature age students do as well as normal entry students but often they need to be convinced of their capability. This requires sensitivity to the particular circumstances of such students. Again we should keep the home circumstances of women students with children in mind when we are preparing time-tables for evening classes. To program their classes to begin at 4 p.m. can often create very serious problems. The main thing is to discover from students if they have special circumstances and to do as much as we can to minimise the difficulties that these circumstances could cause. We should think in terms of what should be done to ensure that there is always proper provision made to creating the type of conditions and circumstances which allow all students to gain the maximum benefit from their studies.



We also agreed that there are good prospects for continuing education and therefore we agreed basically with John Carkeek's group's summing up on that one. We recommend this be followed up in the Institute. There are basic issues such as how to find this activity and how it is to be conducted which require detailed consideration.

In the case of re-training, this seems to us to be a priority matter. We need to examine its implications probably more we think than may have been done in the past. We'll need to think in terms of future student demand and implications for course development and so forth. We have not elaborated on the implications of re-training requirements. This is such a broad topic that further examination needs to be made on it. We recommend that this be one of the ongoing activities to follow this workshop.

We agreed that there was a need for special orientation and counselling programmes for those adult women who seek them as well as for foreign students. At the present time I suppose Des Bradley's contribution could be akin I suppose, to us in our circumstances to the person who first tried to sell a refrigerator to an eskimo. There are so very few foreign students at the Institute but that doesn't mean that we shouldn't be giving very careful consideration to their personal and academic welfare.

We endorse something which appeared in John Carkeek's paper on the Department of Business. He there suggested we should consider yet again the need for and the feasibility of providing child-minding or creche facilities for children of women students.

The next point is that we accepted the implied criticism which I know was very kindly made by Ron Brown that in designing some of our courses that we make certain we don't concentrate entirely on theory. There should be provision for practice and the development of relevant skills in some aspects of our work. Ron did not make this a blanket statement. He merely suggested we consider this aspect where it may be deficient at present.

One thing that loomed up pretty much and that is the whole question of public accountability for what we do. There is mounting evidence that there is going to be increasing pressure on tertiary institutions to justify their activities. We are convinced that this will be a fact of life. Maybe I'm stepping out of line a bit here - we didn't necessarily discuss whether we all agreed that justification of this type was a good thing - but personally I believe it is. There is a big dilemma here. The problem is that if you attempt a cost/benefit analysis it is an extremely difficult and, given our present sophistication, inconclusive exercise. There have been some attempts at cost/benefit analysis but they have been rather imprecise and of limited use. But just because cost/benefit studies are difficult does not mean they should not be attempted. The second aspect that was mentioned in our group

was that maybe that cost/benefit accountability is looking at a tertiary institution through the wrong end of the telescope. Perhaps we should take another tack. We should be doing a more positive, more active and more professional job in marketing the Institute and its activities. Part of this marketing activity would be in explaining to the community what we do and particularly what our graduates are capable of contributing to organisations and society. One of our members, near the end of our discussion, pointed out that we've been talking about special groups, about the disadvantaged, about female students, about adult entrants, about foreign students but what we haven't talked much about are the needs of the typical student. We could give more attention to the student who comes from secondary school to the Institute. He or she is a member of the major, basic element in our student population. We haven't really talked about his or her special needs and wants. One specific matter was raised in this connection. Some parents - because of the career expectations and preparation for careers which are very much inherent in the way we design our courses, in the way that we publicise them and the way that we conduct them, the way that we think about them - get themselves into a state of anxiety because there doesn't appear to be sufficient information and advice collected and particularly disseminated to parents. They feel insufficiently equipped to advise their children on the particular courses that they might undertake. This is crucial where careers are a very important element in the decision to choose one course in preference to others.

There was no advocacy of man-power planning on any large scale. So I leave you with a dilemma. In the absence of manpower planning, how can parents advise their children on the choice of courses which open up reasonable career prospects? I don't know what the answer is.

#### PARTICIPANTS:

Mr. D. Sadler (Chairman)  
Mr. B. Edwards  
Mr. F. Schroder  
Mr. G. Turner  
Mr. R. Young

(SUNDAY, 30th MAY, 1976)

We have covered our priorities along 3 lines: Academic, Administrative, and non-academic community type priorities. On academic lines: yesterday we briefly mentioned that one of the priorities that we had developed was in the realm of the utilisation of human resources within the Institute. We were thinking particularly here of the recycling of academic staff from low demand areas to high demand areas.

The second academic priority is a more flexible approach to accreditation and alterations in course and subject offerings. We were thinking here of the time frame that it presently takes. We would make easier to undertake major alterations in the course offerings that we presently have and simpler to accredit new courses.

Third academic objective. The multi school approach which we presently have Education, Engineering, Science, Arts and General Studies should continue. Where discrepancy in resource allocation exists, these discrepancies should be reduced. However in so doing the relative cost of offerings of other C.A.E.'s must be considered before any alterations are made. In effect we are stating it should be a priority to reduce discrepancies that may exist in the cost per student in some of the offerings we presently make but it shouldn't be done on a basis where we are looking for equivalency between the various departments, because it is recognised that some courses are just, by their nature, more expensive to offer. Before any reductions are made we take into consideration the cost ratios which exist in other tertiary institutes.

A fourth academic priority is that the increase in demand is apparent. In our basic assumptions it was quite obvious that there would be an increase in some areas like continuing education, education for women and things like this. In effect we are saying, put our money where the growth is. We are not in favour of any manpower planning and we apply this to Education as well as to other departments. The group agreed that there should be a good flow of information to matriculants or entrants into the Institute when they're making their decisions but there shouldn't be any quota on entrance into any specific course. In effect what we are saying is that teachers should be subject to the same supply/demand constraints that exist in other areas. It has been the experience in other environments where it becomes apparent that there is an over-supply situation, the number of entrants in that discipline very quickly drops, and in North America there has been a 30% reduction in the intake in teaching.

Now quickly on to the administrative priorities. Re-do of the organisational structure so that it is more efficient and more

in line with basic managerial principles, and included in this would be a floating down of the hierarchy of authority and at a lower level than presently exists. Basically, what we hope would happen is that there would be a freeing up of time of senior people on staff for matters other than operational matters. This is the only administrative priority that we established and now for the community or non-academic type of priorities.

Firstly, community involvement, and we are thinking here that consulting, both free and charge, needs to be less haphazard, more organised with a focal point established at the CIAE. This should be done with the co-operation of our public relations department. We would like to see a situation where one individual is charged with promoting our consulting capacity both free and charge and organising it within the Institute.

The second community priority is that non-certificate continuing education courses, of the John Rooth definition of continuing education, should be systematically established to satisfy community needs and to utilize the human and physical resources of the Institute. We are looking here for a focal point for continuing education to fulfil the needs of the community utilizing the resources which we have at the Institute.

And those are the priorities which we have established in the brief time allowed. We didn't spend any time on assumptions. The assumptions which were made by two other groups so we thought it was more important to spend all our time on other priorities.

PARTICIPANTS:

Mr. B. Gates (Chairman)  
Dr. R. Boothroyd  
Dr. I. Gasson  
Dr. G. Williams  
Mr. D. Woodcraft.

DISCUSSION GROUP 2 CONTINUED - CHAIRMAN MR. G. FAIRBANKS

(SUNDAY, 30th MAY, 1976)

We commenced our discussions by considering the shortage of residential accommodation at the Institute; there are several times or many applicants for admission to the residential college than the number of places available. The question was canvassed as to whether we should concentrate in the next few years on increasing residential accommodation, which would necessarily mean a scaling down of priorities in other directions. It was decided to recommend only a "medium priority" to extending the residential college for reasons: the high cost of constructing brick buildings that would harmonize with the existing residential college complex, and rapidly changing lifestyles which could render obsolete conventional ideas about student accommodation. There was emphasis placed upon the need to make renewed approaches to the Rockhampton City Council so that varied forms of accommodation, such as flats and communal houses, perhaps developed by private enterprise with the co-operation of the City Council, can be provided for students in the future. The question was raised as to what happens to prospective students who apply for residential accommodation but do not get it. Do we lose them altogether as students at the Capricornia Institute, or do they still enrol even though forced to live elsewhere in town? Some research on this point would help to establish the appropriate emphasis to be placed on building new residential accommodation.

There was agreement, in the groups that the proportion of women in the Institute would continue to increase, especially in the Department of Arts, while remaining at a high level in the School of Education. Suggestions for creche and child-minding facilities were canvassed and several possibilities were looked at. Is there already space available in the residential college precinct which could be adapted for this purpose, or could the demountable buildings near the swimming pool be moved elsewhere on campus and converted into a creche? The high cost of building new creche facilities and the fact that such facilities be constructed to certain standards were also considered.

We contemplated the notion of zero growth in tertiary education as one of the possible assumptions for the future. The group was of the opinion that we were not likely to be faced with the problem of zero growth in the Capricornia Institute in the next few years. We foresee a continued growth in total enrolments at least until 1980. Nonetheless, within a pattern of overall growth certain areas, such as the Diploma of Teaching, have already begun to level off. There was support for the view that the present policy of arbitrarily restricting student numbers in teacher education

should be replaced by an "open market" policy, as is the case in most other occupations.

Greater flexibility in future academic staff arrangements at the Institute was favoured by the groups. Fewer permanent appointments and more contract appointments should be made in future, especially at the junior staff level. This is already the practice at the University of Melbourne and some other tertiary institutions. Virtually automatic permanency for even the most inexperienced staff after one year of service is no longer seen or appropriate for the Capricornia Institute.

We spent some of our time on the question of "marketing" our courses to the community. It was agreed around the table that were we to launch an intensive campaign to attract more Arts students, we could probably double or treble the number next year. But too much emphasis in any particular area would be undesirable; it would be unwise to try to turn ourselves into something like an American liberal arts college. At present Arts and Business seem to have the potential to grow more rapidly in student numbers than Education, Science and Engineering. Such predictions have often been proved wrong in the past, however, and future trends are by no means certain.

We faced the problem of how to promote an Institute-wide awareness among all our staff and how to break down Departmental barriers. Cases were related around the table of instances where younger and even senior members of the academic staff were unaware of what is going on in areas outside their own. How can this be overcome and how can a sense of esprit de corps be encouraged? It was suggested that there should be an internal publication for all members of staff as a vehicle of news, ideas and debate. The question was raised, whether such a publication would cut across the line of authority of the Director and the Heads of Departments. The reply was this proposal aimed to better inform staff on Institute-wide issues, without superseding the traditional academic and administrative arrangements.

The question of the Federal Government's policy to tertiary fees was considered, but we were uncertain as to whether or not such fees would be applied, for example, to our Graduate Diploma in Management; the published announcement on fees was rather ambiguous. Points were raised as to who would set the fees, who would collect them, where would they go etc.

On continuing education we referred to the historical problem in Queensland, where adult education has traditionally operated on a fairly low level, without the tertiary links that have been a vital aspect of adult education in New South Wales and South

Australia for many years. The position was taken that regardless of what may have been the case in adult education in Queensland in the past, should be planning our own initiatives in continuing education. In fact, in a variety of ways such as a range of weekend conferences and the World Life Studies subject offered by the Department of Biology, the Capricornia Institute is already active in continuing education.

PARTICIPANTS:

Mr. G. Fairbanks (Chairman)  
Dr. A. Appleton  
Mr. B. Hiskens  
Dr. A. Obsorn  
Mr. N. Price  
Mr. R. Stockwell

(SUNDAY, 30th MAY, 1976)

Group 3 continued to enjoy their discussions this morning and I would particularly like to thank the members of the group and also the visitors to the conference for the excellent contributions they made. What I have to say is not only the outcome of the group discussion but the outcome of the wider group - the contributions of our visitors were of tremendous importance. We felt that we had made sufficient progress with assumptions yesterday so we took no further time to discuss assumptions today except to re-affirm that we assumed a growth situation rather than a zero growth situation. We believe that this was more realistic given the low participation rate in Queensland and the isolation of C.I.A.E. So we refined the work that we did yesterday and throughout this morning's meeting various members of the group expressed that they were impressed with the spirit of co-operation that we had been able to achieve while we have been here this week-end, rather than the spirit of Departmental conflict which often naars our discussions when we are on Campus. We felt that because we have been able to achieve co-operation this weekend that we should aim to continue this co-operative spirit when we go back to work on Monday morning. For this reason we believe that an immediate follow up to this week's discussions was necessary. Our consideration of follow up led us to introduce a further parameter, a further assumption underlying what we discussed yesterday and today, and that was, that we as an Institute must accept and plan to implement for 1977 an attitude of responsiveness to a wide student input to all our courses. Everything else that I report and this is the group's feeling assumes this attitude of responsiveness. Maybe I could now divert slightly and describe what we mean by this widened responsiveness. We agreed in our discussion yesterday that we should increase student numbers in the courses which appear to be growing slowly at the moment. We also agreed that we could improve their growth rate only by changing the conditions under which we admit people to courses. The current entrance requirements need to be broadened. But we must also make sure what when people reach the Institute from secondary school are given the opportunity to get up to standard in Mathematics, Physics and other Sciences if they wish to do a Science course or in Mathematics if they wish to do a Business course. We believe that our courses must be recast to allow for sufficient flexibility to respond to a more varied student input. I don't wish to spend too much of the group's time in talking about the details. However it is necessary to state the group felt very very strongly that if we want to increase student numbers in the no-growth or the low-growth areas then we must change our whole attitude as to how we deal with the student input. This does not mean that we would scrap courses; it does not mean that we should scrap the goals of courses; it does mean we can continue to believe in the quality and characteristics



of outputs we now produce, that these kinds of outputs are still required and will continue to be required. What it means in particular is that we must make it possible for the students who have the wrong preparation at school to be admitted to C.I.A.E. and to come out as Physicists or Industrial Chemists or Electrical Engineers if they can cope. We also agreed that we should look at some of the courses again and see if in fact the output was really suitable for industry's needs. For example we doubted whether education graduates were properly prepared to teach Mathematics and Science to Grade 7 level. If we accept that we should broaden the kinds of input to existing courses, then we can go out and do a Marketing exercise to obtain the students. This Marketing exercise must be a very cleverly planned, it must be both an intensive and extensive experience for the Institute for the remainder of this year. It could well cost the equivalent of two full-time staff members for a whole year, but we would have to cramp all the work into this next half year, in order to generate sufficient interest of students both young students and mature students, to enrol in our courses next year. What I said yesterday about the Marketing exercise I will not repeat. We merely reiterate yesterday's decisions. We further discussed the provision of creche facilities and we found that on campus creche or child care facilities would cause all sorts of organisational problems. But we agreed that maybe through the family day care scheme we could organise arrangements off campus for the care of children whose parents are prohibited from or restricted in their studies because of family responsibilities. When we looked at new courses we felt that our recommendations of yesterday still held that UG3 and PGI courses would still have a very high growth potential. We felt that Masters Degree programmes were relevant and should be developed, not by thesis alone, but mainly by coursework and thesis, and if we wanted a purely research type of Masters Degree it would probably be better for the student to work in his place of employment rather than full-time at the Institute. We reiterated our need for consulting and research to have a real place in the Institute. We looked at the problem of consulting activities conflicting with the work of professionals outside the Institute. We agreed that we had to handle that situation delicately so that our consulting activities would complement and supplement, rather than compete with the work of the non-C.I.A.E. professionals. We believed that continuing education was still important and we believed that external studies should have a high priority. In terms of accommodation for students on campus we recommend that we should continue to increase the on-campus facilities until they became somewhere between 30% and 35% of the total full-time student body. Maybe some units could be provided entirely by private enterprise or some units could be provided by combining private enterprise and

public money as in the Anglican Church block. We believed that in the long term motel type and flat accommodation should be developed but first of all the total size of the residential college should expand so as to allow for use of the existing dining hall and kitchen facilities. But as soon as possible, a greater variety of residential accommodation should be provided. In summary Mr. Chairman I would reiterate that the group felt the need for an Institute-wide acceptance of an attitude of responsiveness to a changed student input which we would be encouraging by a very active Market Research and Marketing exercise.

PARTICIPANTS:

Mr. J. Carkeek (Chairman)  
Mr. B. Bartley  
Mrs. T. Bencke  
Mr. W. Grigg  
Mr. J. Smith

(SUNDAY, 30th MAY, 1976)

Our group started by looking at a state of academic gloom and we assumed a zero growth situation. Briefly we thought that on the evidence we had available to us, zero growth for the time horizon we were contemplating was not a likely situation. So with some relief, we then assumed a state of academic bliss, where there were very few constraints at all on the Institute. We decided that this assumption was too optimistic. Then we decided to enter Senator Kathy Martin's real world and say that somewhere in between was where our path would probably lead. Assuming that there are restrictions on resources, the crucial resource here appeared to us to be those related to current funds, looking at probabilities in terms of our hunch we concluded that Arts and Business would grow but not at any spectacular rate, that Science and Engineering would increase slightly in student population and that Education would remain in a fairly static situation but there would undoubtedly be programme and course changes in the Department of Education in the decade ahead. The distinct possibilities in future course offerings were some UG3 courses, as yet unknown and unidentified, postgraduate offerings, continuing and external offerings. Our major conclusion was that we should renew and accelerate our scrutiny of the allocation of Institute resources, in particular recurrent resources. We urge that the SCAFAAS Committee which is involved in this exercise come to some positive conclusions as soon as practicable so that recurrent funds allocations can be revised.

PARTICIPANTS:

Mr. D. Sadler (Chairman)  
Mr. B. Edwards  
Mr. F. Schroder  
Mr. G. Turner  
Mr. R. Young

Group 1, Mr. Chairman, was considering the government and administration of the Institute. We had some interesting and wide-ranging discussions. It is rather difficult to report precisely what we said because very much of our discussion involved building up of factual information relating to the Institute and its operations, so I'll try to summarise it and stay within the 10 minute limit. We followed roughly the headings as was suggested in the workshop brochure. Thus the headings for this report will be: first, the role of Council, secondly the structure of Council committees and internal committees of the Institute, third, relationships of the Institute with community, fourth structure of the administration of the Institute, and fifth the role of the director (the latter we have re-phrased as the roles of the employees of the Institute because discussion under the preceding headings led us to some interesting conclusions which I will tell you about as I go along).

Because time for this session was cut by half we concentrated attention on the role of Council as a subject in its own right rather than on the role of Council as a "change against." However, workshop participants can readily apply these roles to any situation including the fulfillment of the Institute's objective of growth by 1984.

The Role of the Council: Rather than try to summarize the complete role of the Council and of its Committees I'll merely outline some of the things we debated. The membership of Council we felt to be a very critical aspect of the way Council would actually operate. Even maintaining the membership of Council - the succession of Councillors as people leave is, in fact, a very important role of the present Council, as is how they advise the Minister as to who should replace them when the time for replacement comes. We considered problems arising because some Councillors are able to be very active members of Council, whereas others are very passive, some find it hard to turn up to Council meetings, and others are always there. So the effectiveness of the role of Council, in effect is very much related to the kinds of people who are members and who attend Council meetings, and of their level of participation. It is particularly important, though, that the kinds of people who are members of a Council are able to cover the roles that are needed on its various committees. We felt that the importance of supplementing Council committees by employees of the Institute should be regarded as very important decisions of Council itself, decisions which would greatly influence the effectiveness of Council.

Such decisions would include how Council committees should be structured so as to utilise Council members themselves most effectively, as well as the advice of Institute staff members on Council, and the advice of other people in the community who could be co-opted for the special contribution they could make to Council decision-making. The appointment of appropriate Chairmen of the Council Committees is extremely critical to the effective operation of the committees, because if you have a Chairman who is one of the inactive or poor attenders of Council then that committee could easily languish. The importance of committees in Council decision-making was debated at length. We felt they should be able to present material to Council and have a genuine debate in Council about any problems that arise. We didn't want Council to be a rubber stamp for matters brought up from committees, but likewise, the Council should not usurp the roles of the committees. It should tend to feed the material back to the committees for reconsideration and resubmission rather than take over the committee's role. And so a Council and its committees must be taken together as one concept rather than the plenary meetings of Council being regarded as the only power base of Council.

The Structure of the Institute: This led into another discussion about the structure of the Institute itself and its use of committees. There was a feeling that maybe the structure of Administration of the Institute in terms of its academic and other areas of decision-making could well be too complex for the size and complexity of the Institute itself. We have many Council committees and we have many internal Institute committees and the feeling was expressed that maybe we involve ourselves in too much committee work. Maybe many of our staff members and many Council members were "committee sitting" to too large an extent. Maybe we were involved in "busy work" because of our administrative roles or because of participation on Council committees, but perhaps our involvement achieved little in terms of output. An item which generated considerable discussion was whether an individual should be given power for decision-making in a given area or whether committee-type decision-making is more appropriate in an academic institution. If we have too much committee decision-making we assume that we believe in consensus as the means of getting a decision rather than giving responsibility to individuals. However, consensus, particularly with academics, is almost impossible to achieve, or at least this has been the experience at C.I.A.E. Thus we felt that probably the structure of Council and the structure of academic administration and of administration as a whole ought to be reconsidered, taking into account how much responsibility individuals should have for making decisions on behalf of Council or on behalf of the institution. This discussion of the appropriateness to the operation of C.I.A.E. of the present committee structure and of the roles of the senior

staff of the Institute had to be terminated without reaching any conclusions. But it was felt that "team building" seminars which I mention again later, would provide an effective vehicle for new developments in the administration of the Institute.

The roles of Institute Officers: The role of the Director was another matter we wanted to consider but having looked at the whole of the structure of Council and the structure of administration we began to broaden the scope of our enquiry, and began to ask questions such as the following: What roles do any of us play? How are our roles defined? No matter how our roles are defined, how do we act in them? To what extent do group members accept the decisions of the group, or to what extent do group members either as Councillors or as employees of the Institute still go on believing what they believed before the decision was made? So rather than addressing ourselves purely to the role of the Director as senior academic and senior administrator of the Institute we felt more general questions had higher priority given the time constraint. Thus we agreed to consider our own concepts of the institution itself; our loyalty to the institution and our contribution to it, and the extent to which we as institution members actually accept or should accept the decisions of committees whether made by consensus, majority etc. In the last few minutes, we debated the extent to which members of M.A.C., in particular should feel personally bound by M.A.C. decisions, or whether we should feel free to ignore decisions and then go out and tell the world at large why we disagreed with the decision and why we reserve the right to act contrary to the decision. The committee felt so strongly about this matter that members suggested as another important exercise related to the process of planning was the need to arrange some form of a team building seminar or group of seminars, so that each of us would become more able to accept our roles and accept institute-wide decisions.

Relationship with the community: Finally, we looked at the relationships with the community at large. We felt many of these had been covered very well in the other reports that had been submitted yesterday and this morning. But one area of particular interest to us was the extent to which Councillors and the Council of the Institute as a whole were known in the community. We seem to have been publicising the Institute itself very effectively lately, but we felt that perhaps Council members and their relationship with the community at large might well be promoted more in terms of their involvement with the Institute. We agreed that Council members could be even more effective as filters for society and bring more inputs to Council meetings, if they were accosted more in the streets and asked to discuss Council matters; such involvement could in turn have a greater impact on the community at large. We felt also that maybe in our own publicity

as an Institute that not only should we consider the traditional media; we should also be more concerned with getting a message through house journals, trade union journals and all other forms of publicity in a sort of general PR sense rather than in an advertising sense.

Thus in the time available we tried to examine role relationships of the individuals who are employees of the Institute and the role relationships of members of Council both within their own groups and toward each other. Time was so pressing that we couldn't really make definitive statements. In particular we didn't define the role of the Director, but we believed that a team building seminar might be useful means of our defining our own roles more clearly, and these would of course include the role of the Director.

PARTICIPANTS:

Mr. J. Carkeek (Chairman)  
Dr. A. Appleton  
Mr. G. Fairbanks  
Mr. B. Hiskens  
Mr. N. Price

GROUP 2 - CHAIRMAN, MR. R. YOUNG

SESSION - " TEACHING "

Our deliberations into the teaching aspect brought out a number of things which must be followed up. There has to be very detailed continuing consideration of the points arising from our discussions.

As we were looking at the effect of priorities on the particular topics listed for consideration we listed the priorities we considered were agreed from previous discussions:

- expansion will essentially be in UG3 and PG1;
- there will be an increase in continuing and external programmes in the Institute;
- it is desirable to consider amendments to existing courses to allow flexibility in entry;
- the marketing of the Institute and its courses is very important;
- there should desirably be some flexibility of staff teaching expertise.

How this flexibility is built in is another matter. e.g. retraining during study leave.

With those assumptions then, we considered the topics listed on the programme and make the following observations:

The Admissions Policy

- (i) Within the constraints of the funded student numbers growth should be encouraged in all courses, but in the case of an excess demand, a higher priority should be assigned to Science and Engineering courses. This is a recommendation that obviously will need much more discussion.
- (ii) That existing entrance requirements should be more liberally interpreted. Included in all of the courses is the special entry category, which essentially allows you to bring into a course someone who can show by maturity, motivation or any other acceptable means, that they would be capable of completing the course. We felt that more use could be made of such provisions.
- (iii) Consideration should be given to removing prerequisite subjects from entrance requirements.
- (iv) Where the need exists for remedial help (which could be subsequent to such moves suggested above) strategies must be devised to give this help.
- (v) The needs and problems of other than full time students should be very seriously considered, when determining admissions policy. In particular we should pay attention to minority or disadvantaged groups e.g. married women with young children.
- (vi) Admissions procedures should be reviewed annually as soon as possible after the event. One tends to find after you've set down nice policy guideline that unless you go back and review exactly what's happened you don't really find out any deficiencies of the policy that you've laid down. As a matter of practice we consider this is important.

Timetabling

C.I.A.E. previously used a 3 term system and now uses a 2 semester system. This will be re-considered in about 12 months time.

We considered the usefulness of the trimester system using as definition that the trimester system is the calendar year divided into three semesters with a staff member or student obliged to work only for two of these three semesters - would allow a staff member to work in the third semester if paid extra or perhaps get two semesters free of teaching the following year.



### Timetabling Cont'd.

Likewise a student could possibly accelerate his movement through a course perhaps finishing a 3 year course in 2 years.

But more importantly, those who enrol with not quite the right level of attainment, could use the first of these semesters as a remedial semester and complete his normal year's work in the two following semesters. It is of course fundamental in this system that each subject is offered in each of the 3 semesters.

Two semesters plus summer schools as an alternative to the trimester system was also considered, but it was felt in the time available, and with all of the problems that we could see cropping up with such systems, there is need for a lot of further detailed investigation.

With the inclusion or expansion of intensive, short course, continuing and external courses, the day to day timetabling problems would become significant - not only of staff but of facilities as well. There could well have to be policy decisions as to which takes precedent, and obviously there are problems associated with any such assigning of priorities.

### Teaching Strategies

- (a) (i) Accepting that continuing education and external studies become a more important part of the overall Institute programme, we feel that there is a requirement for a strong central unit to provide professional, administrative, secretarial and marketing skills in these areas of education.
- (ii) This unit should be independent of any department, and be established with the head of the section at a very senior level - head of department level is recommended.
- (iii) We consider that external and continuing education should be part of the normal duties of teaching staff of C.I.A.E. (This perhaps assumes that there would be a change in funding for Institutes.)
- (b) (i) The formation of the Educational Practice Unit which was referred to in the Staff Association document we see as a very important part of C.I.A.E.'s development and something of urgent priority.
- (ii) That the E.P.U. be independent of any department was also considered to be very important.
- (iii) Particular notice should be taken of library, audio-visual and other such educational facilities not optimally used at present.

### Assessment and Justification

The area of discussion was not clearly defined - assessment and justification of what? The teaching programme? The Institute as a whole? There was insufficient time to come to any consensus of opinion, except that the Educational Practices Unit was seen again to be able to play an extremely important part in assessing the overall effectiveness of any programme. And as far as assessment was concerned it was felt that no single person or group is best able to adjudicate. There was long debate on the role of students in the assessment procedure, ranging from "they don't have any say at all" to "they should have total say". Society, Council, Boards of Studies, people authoritatively in command (Heads of Departments, Director), educational practice unit, and the like should all play their part in the assessment whether it be the assessment of a teaching person, of a course or of the Institute overall.

Finally, while not part of any assessment function, we felt that the Educational Practices Unit could play a very useful part in in-service training of C.I.A.E. staff, teaching us or assisting us in the teaching process.

#### PARTICIPANTS:

Mr. R. Young (Chairman)  
Mr. B. Bartley  
Mr. B. Edwards  
Dr. I. Gasson

Mr. W. Grigg  
Mr. D. Sadler

GROUP 3 - CHAIRMAN MR. D. WOODCROFT  
SESSION - "CAMPUS AND FACILITY PLANNING"

MR. WOODCROFT:

Group 3 - our topic was Campus and Facility Planning; and rightly or wrongly, we considered this not in the broad aspect but in the terms of the nitty gritty as it were and in the light of the impending realities.

We made an assumption which we considered to be a fair one - we must accept the premise that low capital funding will be the order of the day for the immediate future if not the long term future. This either simplifies or complicates the problem of planning, we're not quite sure which.

It means that we've got to pay even more attention to priorities, than we have in the past, and ask much more searching questions.

In the revised submission for the 77/79 triennium which we submitted in the latter part of last year, we indicated that in a rough order of priority that the building programme should follow the course:

Completion of the ERA  
Residential accommodation  
Education and Humanities Building (or teaching space)  
Biology  
Administration  
Engineering III  
and Gymnasium.

Whether that is still a fair order of priorities is open for debate, but one thing is entirely certain, the completion of the ERA is a must and it would appear that this is a reality.

Residential accommodation, as we've heard from discussions over the last day or so, would appear to be a pressing priority.

Teaching space could be a pressing priority, depending on student numbers.

All that adds up to mean that we've got to be very conscious of the priorities, and we've also got to be very conscious of our need to adjust our situation to suit the changing climate which may occur both in terms of students numbers and in terms of capital funding. There is no doubt going to be tremendous pressure from competing demands in the capital area, not that we have not had competition with capital demands in the past, but it will be accentuated.

We have speculated rightly or wrongly that the immediate funding (and perhaps this may extend to 1984 and beyond) will be low compared with past funding. While it is entirely unclear at this stage, 1977 may see a capital funding perhaps of \$1,500,000. There could be some escalation on this perhaps in future years but it could well be that the competing demands of the Colleges in Queens-land will also mean that we have a drought-flood situation in terms of overall funding.

Arising from this it is apparent that we must pay even closer attention than we have in the past to flexibility in provision of teaching space and to staged construction. When I say staged construction, I mean staged design to fit the uncertainties of capital availability. This could mean that the E.R.A. may have to be used in part for teaching space after its completion.

Dealing with the matter of residential accommodation we consider that every effort should be made to provide residential accommodation of a level deemed necessary. In the light of what is a tight money situation an endeavour should perhaps be made to fund such a project from outside the Institute resources. In other words, we should pay close attention to ways and means of raising funds from individuals, companies and so on. The immediate aim should be to raise the level of accommodation on campus to that level which will effectively and economically utilise the food preparation and dining facilities which are already provided.

As I said before in this whole exercise student numbers and the mix of student numbers will dictate to a large extent the course which we may adopt. Provision for specialist spaces for laboratories and such like will be a problem because they are of a high capital nature and have only a low utilisation.

Grounds and Services didn't get the consideration it should have due to lack of time, but we concluded that we must pay close attention to the progressive development of the campus including the implementation of landscaping to improve the overall appearance and development of the campus. There could be some spin-off here in economics in that the proposed dams could mean a reduction in the recurrent cost of water for irrigation, and correct landscaping around buildings could result in economies in terms of air-conditioning.

The provision of dams then becomes a priority as also do we consider the provision of a flora and fauna sanctuary.

We did not quite know how to tackle the item of "committees" which happened to be under our heading and I am pleased to see and hear that Mr. Carkeek's group has covered that fairly well. We had the feeling that that might have happened. We did give some brief consideration as to whether the Building and Equipment committee as such ought not to be split into two groups, one handling buildings and one handling equipment - the feeling was that such a change should not be made.

There was some consideration given as to whether the Building and Equipment committee with the extent of its deliberations, which have been rather lengthy over the past years, is paying enough attention to detail and likewise whether in fact the committee was being made aware of adequate detail. Three members of the building committee happened to be in my group, and we considered in fact we were getting enough detail on which to make objective decisions.

So in summing up Mr. Chairman, it would appear that the capital situation will be very tight and we must look to providing maximum flexibility in all our capital endeavours, be they buildings or any other item of capital expenditure, and we must be prepared to accept the need to change with changing circumstances.

MR. SADLER:

A question Mr. Chairman. What was the reason for deciding and agreeing to retain Building and Equipment as one entity?

MR. WOODCROFT:

The matter of equipment is pretty well considered within the Institute before it reaches the Council committee. One does not have to bury his head in the sand to know that there are a number of problems particularly with funds in the equipment area. I think it is fair to say that we didn't think it was the Building committee's job to arbitrarily carve up the equipment vote, that was the job of internal administration. Bear in mind that a committee considering building and a committee considering equipment would have still to exist as Committees of Council. So you would find yourself I think in the situation where you would have the Building and Equipment Committee members wearing two hats, one for Building and one for Equipment and meeting on two days instead of one.

DR. ALLEN:

Mr. Chairman could I make one observation to add a further point. One of the consequences of the new arrangement on triennial funding is the effect of the Annual States Grants Act. Since the calendar year under which the Colleges are financed bridges two financial years, we may be faced with an added constraint, namely cash flow, in each of the two six months. It is a point I simply lay on the table for you to consider because it may have a further constraining effect on the manner in which projects are in fact tendered and contracted, and the way in which they are operated towards the end of a year.

PARTICIPANTS:

Mr. D. Woodcroft (Chairman)  
Mrs. T. Bencke  
Dr. A. Osborn  
Mr. F. Schroder  
Mr. J. Smith  
Mr. G. Turner

GROUP 4 - CHAIRMAN, MR. R. STOCKWELL

SESSION - " STAFFING "

I will be as brief as I can. We tried to isolate further areas for future debate. Following on Ron's suggestion we can see future discussion on these areas that we have isolated and in other areas. First of all fixed contracts.

There were a lot of speakers against it. We considered the first year was spent finding one's feet, the second year doing research and the third year looking for a job.

We felt that in this morale was low, we felt that academics tend to thrive in a secure atmosphere not having to worry about where their next meal was coming from and we were not too happy about fixed contracts.

There were suggestions that in the present system, the probationary period be extended or some other probationary system be introduced. We decided that we would like to seek Dr Allen's view on this point and I will prepare him for this question. Another point was that we felt that a tenured staff member has potential for more loyalty in an Institute such as ours where loyalty was so important.

The second point we looked at was the type of staff we would like to employ in the future or should be employed. We isolated three categories. We saw important part-time staff on a lower level and I will go into this in more detail in a moment; those with a broad basis of skill at a slightly higher level and then a specialist corps probably on a higher level. But we saw the repercussions of such a staff break-up; in fact our criteria for promotion at the moment would seem inappropriate and there would seem to be different career aspirations for these three categories.

We looked at part-time staff for quite some time; we felt that this was an area that may not be being tapped to the fullest. It is an area that had problems in the past, but we can see improvement in the future as our own graduates go on the local market. The role that our own graduates will play is starting.

Well, we didn't see the tutor role, which rather produces in-breeding at University level, as desirable. We saw them going into part-time employment at the Institute rather than on a tutor basis. We thought that they could contribute more in this way.

We saw part-time staff coming in to give short intensive courses and maybe at the same time offering courses in the area of continuing education which is one that we covered in some detail. Staffing, the management of staffing, the allocation of staffing and so on was discussed at some length also. We felt that in a number of cases we came back to this. There should be a package deal for each Department for each School of something like this and that to a great extent the person running that School or Department would have greater control of staffing & the proportion of staffing that he used within his own area of responsibility. I will come back to that one in a second too.

Technical staffing we went in to for some time; we wanted the problems of this area looked at; we discussed such things as consultancy work by our technical staff. Carrying on quickly, relationship with professionals in our own profession. We saw a possibility of exchange,

You might see the education model this year where seconded teachers have come into the Institute. The possibility of exchange was looked at to try to even out the load of academics, you work very hard for 36 weeks of the year and then it gets a little easier towards the end of the year. Continuing education, we looked at it in the light of staffing and part-time staffing and I think I covered that earlier.

Finally, we looked at the need for heavier emphasis of staffing at the higher echelon, and do we need a deputy director. We seem to get back to our old package deal again and suggested that if we had Chairmen of Schools who had a lot more responsibility within their areas, there would be a chance we would overcome some problems and the need to employ more high echelon staff.

---

PARTICIPANTS:

Mr. R. Stockwell (Chairman)  
Dr. R. Boothroyd  
Mr. B. Gates  
Mr. R. Shelley  
Dr. G. Williams

THE CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

PLANNING WORKSHOP - 28-30 MAY, 1976

DEPARTMENT OF ARTS - OBJECTIVES, STRATEGIES AND ASPIRATIONS

1. PREAMBLE - ASSUMPTIONS AND PERSPECTIVES

The goals, objectives, strategies and aspirations of the Department of Arts have all been related to its environments. The environments in order of immediacy and primacy are the Capricornia Institute of Advanced Education (CIAE) as a whole, the Central Queensland region, the state of Queensland, the nation of Australia and the world.

The Department of Arts is primarily a teaching unit within the C.I.A.E. The C.I.A.E., a publicly funded organisation, exists to provide tertiary standard education. The Department of Arts is regarded as only one element in the entire C.I.A.E. system. This view is predicated on the belief that it is the progress of C.I.A.E., its students and personnel as a whole which is of paramount importance. A corollary is that if there were an irreconcilable conflict between the interests of the Institute as a corporate body and those of the Department of Arts, the C.I.A.E.'s interests should prevail. The Institute's primary goal is seen as maximising the quality of its learning environment for all students, subject to the constraint of using its funds in an equitable, socially responsible manner.

The Department of Arts, as a sub-system of the C.I.A.E., is concerned with people - its students, its staff and its supporters and funders. The Department has responsibilities to each of these groups.

2. DEPARTMENT - STUDENT RELATIONSHIPS

2.1 Department Goal:

The basic goal of the Department with regard to its students is to maximise the quality of their learning. In order to do this the Department strives to satisfy their vocational, self-fulfilment and developmental needs and wants. This necessitates attention to curriculum design, development and evaluation; learning theory; teaching methods and techniques; the sociological factors in learning; physical resources such as equipment and materials; and the management of the Department.

The Department's central orientations are in the fields of the humanities and social sciences. An underlying assumption is, however, that inter-departmental and multi-disciplinary studies are valuable for students in satisfying their educational needs and in using the Institute's teaching and other resources more effectively than in concentrating all studies in one department.

2.12 Departmental Objectives:

Irrespective of the course concerned, the department aims at developing the quality of each student's knowledge (a set of cognitive objectives), attitudes (a set of affective objectives) and skills (a set of

psychomotor objectives). The general objectives can be stated as follows:

- \* To assist students to satisfy their vocational needs by providing tertiary standard courses related to current and emerging employer demand.
- \* To provide information relevant to these occupations and to encourage students independently to increase their knowledge of their chosen career field.
- \* To provide information and to encourage students to seek independently information about the rationale, policies, personnel management and employer-employee relations in the organisations in which they have occupational aspirations.
- \* To encourage students to value personal initiative, independent evaluation, co-operative effort and personal integrity of thought and action.
- \* To provide instruction, experience in and evaluation of skills related to the fields of learning provided by the department.
- \* To provide a climate of trust and respect between teacher and student.
- \* To provide such guidance on career choice and job placement as the resources of the department allow.
- \* To encourage student participation in the conduct of the department.
- \* To involve students in evaluation of courses and subjects and the assessment of students' progress in subjects.
- \* To involve students in evaluation of the quality of performance of teaching approaches and teachers, of teaching methods, and of resources and aids used.
- \* To conduct the activities of the department - enrolment procedures, time-tabling, attention to personal problems, study habits, the provision of information on subjects and semester units - so that there is generated on the part of students a feeling that they are regarded by departmental staff as important as individuals and not merely as another anonymous person in a crowd of Arts students.
- \* To acquire, after sensible evaluation and justification and to the extent that Institute funds will allow, equipment and materials suited to the conduct of courses and subjects.
- \* To co-operate with other departments of the Institute for them to provide subjects for Arts students which are consistent with the broad aims of the course and which are relevant to the students' academic backgrounds, talents and interests.
- \* To monitor significant developments in the content of subjects and to keep courses up to date.



- \* To develop and maintain a job placement programme to assist Arts' students to find satisfying employment.
- \* To seek advice and feedback from employers on the strengths and deficiencies of Arts educated employees and to make any necessary adjustments to the course or subjects.
- \* To emphasise the need of each student to pursue realistic and sustained efforts aimed at his or her own personal self-development during and after the time spent at C.I.A.E.
- \* To encourage students to develop with and adjust to changes in their professional, vocational and social environments.
- \* To offer tertiary standard courses suited to students' career aspirations as well as to their personal interests and inclinations, thereby preparing them for a fuller participation and involvement in their society.
- \* To approach curriculum development and the conduct of courses and subjects so that the experiences of students act as stimuli for raising their levels of aspiration and accomplishment.
- \* To assist in the enrichment of students' lives and advance their career prospects to the limits of each student's capabilities and interests.
- \* To pursue excellence in all the teaching and learning activities of the department.

#### 2.13 Cognitive Objectives:

##### Vocational:

- \* To provide courses and subjects the content of which is such that students will be equipped to make sound contributions to the tasks of the organisations which employ them. This necessitates that each student has sufficient knowledge about his or her chosen occupation. This knowledge includes insights into the philosophy, rationale, policies, objectives, progress, achievements and problems of the vocational field in which each student is preparing himself for employment.

##### Individual:

- \* To provide learning experiences in which each student gains a clear understanding of himself as a person, of people in group interactions, of himself and others in relation to the major social institutions - the family, religion, the economic system, the educational system, and the polity.
- \* To identify and analyse those elements in society which contribute to either stability or change and their implications for students as individuals and as members of the society.

## 2.14 Affective Objectives:

### Vocational:

- \* To develop responsible, balanced and reasonable attitudes to employers and employing organisations.
- \* To strive for high quality contributions to the progress of the employing organisation and the vocational area.
- \* To encourage characteristics of reasonable loyalty, identification with and commitment to the employing organisation.

### Individual:

- \* To value sound scholarship - theoretical and applied.
- \* To strive for independence and initiative in thought and action.
- \* To regard moral and intellectual honesty as important attributes.
- \* To be courageous but fair in judgements and the expression of these judgements.
- \* To place a high value on intellectual curiosity and objectivity.
- \* To value consideration of others - to be compassionate without being a busy-body.

## 2.15 Skills Objectives

### Vocational:

- \* To develop to the level of basic professional competence, the skills required in the student's chosen career. These skills relate to research, methodology, analysis, synthesis and interpretation of data in such fields as sociology, psychology, economics, public policy, social planning, geography, history, literature, language studies, the media of mass communication, journalism and law.
- \* To develop skills in reading, writing, listening, discussing, explaining, arguing, reporting, defending and speaking as they relate to the student's chosen career field.
- \* To develop inter-personal skills as an employee in relation to the student's boss, the student as a supervisor or manager, and as employee in relation to the organisation's clients or customers.

### Individual:

- \* To provide relevant practice for each student, by means of case studies, exercises, problems, and projects, to develop the particular skills most appropriate to his chosen career field. This could include skills in the collection, collation, computation, presentation and interpretation of numerical data; the preparation, conduct and administration and reporting of research projects; map drawing, reading and interpretation; preparation, presentation and defence of an issue of a technical, social, economic or literary

nature; the techniques of observing, evaluating and reporting an incident, event or movement by oral, written or pictorial means for inclusion in and dissemination by radio, the press or television; the analysis of a social issue or problem and the techniques and strategies needed to resolve the issue or problem; the ability to discriminate between accurate and inaccurate data in whatever form and to evaluate valid from invalid or suspect argument on a particular issue; to examine and evaluate evidence; and to have ready recourse to principles and standards and to apply these soundly in forming and expressing conclusions.

2.16 Departmental Courses:

2.161 The Diploma of Arts

2.1611 Course Goals:

The broad goals of the course are:

- \* to produce liberally educated graduates who are capable of making substantial work contributions to organisations in which they are or seek to be employed,
- or to provide liberally-biassed tertiary under-graduate standard learning experiences for persons whose career choices are unsure
- or to provide liberally-oriented tertiary under-graduate standard learning experiences for persons who seek to improve their awareness, insights and skills as a means of personal development but who have no career aspirations in mind.

These goals are based on the proposition that there need be no conflict between basic vocational, non-specialist education and general education. General education is here taken to mean learning experiences which provide students with broad insights into the standards, texture and dimensions of and directions in which organisations, communities, societies and nations are developing, economically, socially and politically.

2.162 Graduate Diploma in Community and Regional Studies

(This is a possible programme for introduction in 1978). Preliminary work has already begun on the design of the course but it is recognised that a great deal more discussion and planning are required before the Department will be satisfied that it is in a form to present

.... /10.

to the boards of the Institute for their consideration.

The course is seen as an inter-departmental programme. Already all departments of the Institute have been approached to test their reactions. The response has been encouraging.

#### 5. DEPARTMENT - STAFF RELATIONSHIPS

The overriding principle governing the conduct of the Department in relation to staff is that the contribution of each individual is important to the quality of our performance. Academic as well as support staff contribute to this outcome.

The responsibilities of the Department are to ensure that:

- \* all staff are treated fairly in the assignment of tasks - teaching, counselling, administrative, developmental.
- \* all staff are recognised for their part in the functioning of the department.
- \* all staff are encouraged, to the limit of available resources, to undergo personal and professional development.
- \* all staff are encouraged to participate in the conduct and development of the department and its learning/teaching activities.

#### 4. THE DEPARTMENT - SUPPORTER RELATIONSHIPS

The principal, but not the only, means of generating and maintaining sound relationships between the Department and members of the community is through the department's Board of Studies. This body is probably the largest in the Institute. Its main function is to consider policy proposals on academic matters.

All members of academic staff maintain contact with individuals and groups whose activities are relevant to their professional interests, the subjects they teach and to the learning and career needs of their students. A policy of actively broadening the extent of these activities is being pursued. The Department has, for example, a career placement programme which is designed to assist students in seeking suitable employment. Each member of staff is also an adviser to a group of students. The advice given is on course selection, academic progress and welfare. The advisers refer students to the Institute counsellor when personal and confidential problems arise.

#### 5. DEPARTMENT - FUNDERS RELATIONSHIPS

All members of the Department support the proposition that funding in the Institute should be on the basis of reasonable equity. They further support the proposition that all expenditures - recurrent and capital - should be justified on reasonable grounds. This to them means that acceptable standards and criteria should be used before any expenditures are undertaken on staff, material, equipment, learning spaces or administrative resources of

any kind.

6. DEPARTMENTAL ASPIRATIONS

\* The main emphasis in the immediate future is accepted as being consolidation and improvement of the Diploma of Arts (which we hope will be accredited as a B.A. this year). This is the *raison d'être* of the Department.

\* Feasibility and justification studies and curriculum development activities with regard to the offering of Graduate Diploma in Community and Regional Studies is in progress. Present indications are that this course should not be offered before 1978. The staff of the Department wish to have a thoroughly planned submission prepared before the course is presented for consideration by Institute bodies.

\* Certain less definite developments could be:

(i) the establishment of major core stream within the Diploma of Arts concentrating on Asian and Pacific Studies. A possible date for introduction is 1979.

(ii) the establishment of a department of Social Work in 1980. Some of the development work for this department could be undertaken by Arts' staff whose qualifications and interests are related to the social work and social welfare field.

(iii) the establishment of a Law department in 1981. The factors which suggest this to be a reasonable possibility are the regular sessions in Rockhampton of the Supreme, District and Magistrates Courts, the existence of a Supreme Court Library (a rare and invaluable resource) and the wide coverage of the Institute of the Central Queensland region. Some of the planning for such a department could be handled by suitably qualified Arts staff.

(iv) a Master of Arts degree course. The prospect of such an offering is dependent on the success of the Graduate Diploma. A possible date for an M.A. is 1982.

26.5.1976.

THE CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

PLANNING WORKSHOP - 28-30 MAY, 1976

FOSTERING HIGH QUALITY TEACHING IN A COLLEGE  
OF ADVANCED EDUCATION

Increasingly members of staff of the Capricornia Institute of Advanced Education are advocating the establishment of a Teaching Practices Unit. This paper suggests some matters which could be considered in future deliberations on this matter.

The heart of education is learning. Learning is a uniquely personal affair. Attitudes in common currency are that it is not a significant goal of a college to cram students with current knowledge, or to foster blind dependence on a unit's teaching. Students are encouraged and rewarded for assuming increasingly independent responsibility for their own learning.

Faced with these attitudes and perceptions, educators struggle to reconcile the obvious need for individualised instruction with the limited facilities and personnel that make the accomplishment of such a desirable goal seem like an impossible dream. Many have sought the answer in educational technology - often equated with audio-visual methods. Yet there is no magic in machines and equipment. They, like computers, do only those things for which they have been programmed. This means that creating "software" is the most critical element in the optimum use of "hardware". To exploit fully the potential of a growing array of simple and complex equipment the machines must be regarded not as a substitute for old teaching (which emphasises group conformity and passivity), but as an aid to new learning (which stresses individuality, independence, and activity).

Many a teacher will testify to the virtue of a tutorial, small group situation for effective learning. But the tutorial ideal is far from a widespread reality. Students are instructed through lectures, seminars, and laboratory demonstrations, through practical work, field trips, projects and case-studies. They read books, journals and other printed materials, watch films, slides, and television programmes. They use sound recordings and operate many pieces of equipment.

This catalogue of existing instructional modes has been given to make the point that innovation in instruction should not be introduced merely for the sake of novelty. For one thing, not even the extraordinarily wide array of methods now available has ever been subjected to much critical evaluation. We simply are grossly ignorant of the relative effectiveness of one method in comparison with another.<sup>1</sup> There is a latent danger therefore in the unease with which so many post-secondary educators view the teaching-learning situation in colleges. Concerned about prevailing conditions, teachers may well turn to what may be labelled charming deceivers - educational technology aids.

Let me say at once that I am not opposed to the application of technology to educational processes. My concern is that too much can be expected of and claimed for audio-visual methods and techniques. The current reality, it seems to me, is well expressed by Norman MacKenzie .... /2.

and his colleagues. Writing on the so-called "crisis in teaching", they state:

*"What do people mean when they say this? They certainly do not mean any sudden discovery that the long-accepted methods by which instruction in higher education proceeds are hopelessly and inevitably ineffective: that would fly in the face of the evidence that universities and colleges obviously do manage to educate large numbers of students to acceptable levels of knowledge and reasonable levels of professional competence." 2.*

Mackenzie and his collaborators go on to identify the now familiar sources of complaint from students, from staff and from administrators. These need not detain us, except to make a mental resolve not to ignore the obvious. The paramount contention to be made is that there are many tried and effective teaching methods which can be integrated into a college's learning environment together with the newer technological advances. None is necessarily more desirable than another. The touchstone for each method is its contribution to effective learning.

Methods, furthermore, can only sensibly be related to aims and objectives. Many aims of post-secondary education, are either implicit, or else expressed in general terms - such as "encouraging students to think for themselves". General aims of this type reflect an attitude or state of mind on the part of the teaching staff rather than offer an operational description of the curriculum.

The dearth of relevant evaluation of traditional methods and techniques makes it hard to offer useful comments about new teaching methods. On what basis can one be compared to the other? How can we judge the effectiveness of innovations when we must plainly confess that we are unsure how to assess the effectiveness of what is being done already? A normal criterion of achievement is a grading or examination system that is geared to the conventional methods. What if it turns out - as some research suggests - that the need to "pass" in the required fashion may have more influence on what a student learns and the way he learns it than does the formal pattern of teaching? What of suggestions that the socio-economic status of students may be more decisive than any other variable in determining the subjects they study and their level of achievement in them?

The Coleman report, Equality of Educational Opportunity,<sup>3</sup> undermined much of the conventional wisdom about the impact of educational approaches on student learning and achievement. The most comprehensive analysis of the American public school system ever undertaken, the Coleman study cost \$2 million to produce. It included data of 600,000 children, 60,000 teachers, and 4,000 schools. Prior to the study, it was widely believed that factors such as the number of pupils in the classroom, the amount of money spent on each pupil, library and laboratory facilities, teachers' salaries, the quality of the curriculum and other characteristics of the school, affected the quality of educational outcomes and educational opportunity. But systematic

study revealed that these factors had no significant effect on student learning or achievement. Moreover, learning was found to be unaffected by the presence or absence of ability grouping, guidance counselling, or other standard educational programmes. The Coleman study reported that family and peer-group influences were more significant than the quality of teaching in student achievement. In short, the things that "everybody knew" about education turned out not to be so.

The only factors that were found to affect a student's learning to any significant degree were his family background and the family background of his fellow students. Family background affected the child's verbal abilities and attitudes towards education, and these factors correlated very closely with scholastic achievement. Of secondary but considerable significance were the verbal abilities and attitudes toward education of the child's classmates. Peer-group influence had its greatest impact on children from lower-class families. Teaching excellence mattered very little to children from upper-and middle-class backgrounds. They learned well despite mediocre or poor teaching. Children from lower-class families were slightly more affected by teacher quality.

We may well also ask: What evidence is there that effective learning depends on a high level of contact between teaching staff and students? How valid is the widely held belief that there is a significant and positive link between teaching and research? I know of no study which demonstrates conclusively that link (or refutes it.) Yet the belief that it exists is continually used as an argument to support the view that undergraduate colleges without a graduate division offer inferior academic opportunities. It is also this special link that is usually given as the reason for exempting tertiary education staff from the need to receive any professional training as teachers, such as the teachers of primary and secondary school children must have.

Until college teachers are assisted to become more adept in the art and craft of teaching, the best immediate contribution to be made is to provide criteria for selecting one instructional aid in preference to others. These criteria can be stated summarily in the form of questions:

- Is the material appropriate to the learning objective?
- Does it demand active student involvement?
- Is the material appropriate to the audience?
- Is the material basically sound?
- Is the material of good technical quality?
- Is the cost justifiable?

Such criteria as those listed demand serious consideration when individual teachers or teaching units make decisions about the creation or selection of instructional aids, whether these are to be employed in group exercises or by individual students working alone.

These are stop-gap, cookery book expedients. A far more



systematic approach to the situation is imperative. An Educational Practices Unit is required for a college. And if learning is the keystone in any educational arch, then an Educational Practices Unit should first focus staff attention upon those things that can demonstrably facilitate or drastically impede it. This goal may be achieved in several ways: through dissemination of information about what educational science has to say on means of solving instructional problems, through demonstrations that illustrate in a concrete fashion the practical utility of abstract or general principles, through research that documents the achievement of students in different instructional settings, or the relative costs and benefits of conventional and innovative instructional modes.

Learning should, in short, be a focal point for educational planning, implementation, and assessment, exploiting the same principles of systematic study that have made physical science strong but avoiding the generalisations from strongly held opinions or inadequate sampling that for so long impeded the development of scientific medicine. In order to accomplish this goal, the Educational Practices Unit will require trained professionals not merely gifted amateurs.

#### Functions

The Educational Practices unit's function is neither that of educational missionary among the educational heathen nor of educational healer among the educational sick, rather a colleague unit whose special expertise can be helpful to those who carry responsibility for training and educating the present generation of students.

Thus, the first task of an Educational Practices unit lies in identifying with the staff the educational problems that require attention. These generally fall into three broad categories. What should the college, teaching unit, or individual staff members be trying to do? How should they go about doing it? How do they know that they have done it? The first deals with educational objectives, the second with curriculum and instruction, and the third with evaluation.

The most important, and most difficult, is the matter of objectives. That is not to say that educational programmes at post-secondary level are without laudable goals - they are often replete with them. The issue is rarely nobility of purpose, but specificity. For example, few would quarrel with the desirability of producing a physician who is well informed about medical science, skilled in the techniques of diagnosis and therapy, committed to the preservation of health as well as the alleviation of illness, and sensitive to individual human needs. It is the translation of such general goals into specific educational objectives that commonly causes the trouble. How well informed should the graduate be and about which medical sciences? In which techniques of diagnosis and therapy should he become skilled and at what level of competence? By what means shall he preserve health and alleviate illness - alone or in concert with other health professionals, and if the latter, with which ones? And finally, who makes

these decisions about objectives? Staff members? Practitioners? Students? Patients? Society?

These are the types of questions which the educational specialist in the Educational Practices unit should help those responsible for educational programming to grapple with, for it is only as they are dealt with in specific terms that a rational course of instruction can emerge. At the present time, it is fair to say that the nature of training and education more often reflects tradition, teacher interests, and the prestigious lure of frontiers of knowledge than systematic determination of educational objectives that are realistic in terms of community and social need, couched in terms of learner behaviour, achievable in terms of time and resources available, and descriptive of the elements of competence most needed by the community (town, city, village, region, nation) that the graduate is to contribute to.

Without objectives so derived and so defined, construction of a curriculum can scarcely be a rational exercise, but their absence has not notably lessened teachers' pre-occupation with rearranging the course of instruction. For an uninvolved observer, it is fascinating to witness the passionate debates that lead to inclusion or exclusion of subject matter, placement of specific experiences within a curricular span, or determination of instructional time; but for one concerned with educational efficiency and effectiveness, it is frightening.

A curriculum should not represent a collection of episodes assembled according to the pleading of special interests. It is the blueprint for an educational structure that is designed around some organising principle (for example, servicing a motor car), that incorporates planned sequence (one that requires that each unit to build upon what has gone before and lead into what will follow) and appropriate pacing (time to achieve what has to be achieved with provision for differences in individual rate), and that utilises what is known about the facilitation of adult learning (for example, problem rather than content orientation). And like the blueprint that guides construction of a building, the preparation of an educational blueprint is no work for amateurs. Neither subject matter nor curriculum specialists are alone fully qualified for this task, but when brought together through an Educational Practices unit they make a formidable team for curriculum building.

Questions of instruction require similar analysis and solution. It seems self-evident that the instructional tool should fit the task, but it is all too apparent that instructional materials and methods are commonly selected in almost reflex fashion, without reference to learning objectives. For example, the most prominent instructional method in post-secondary education throughout the world is still one that some have said became obsolete with the invention of the printing press - the lecture.

There is a need for professional assistance in exploring alternatives in face of obvious fact that no single teaching method can serve all educational

needs any more than a single pharmaceutical agent can cure all diseases.

To allow prevailing practices to continue would be to force teachers to imitate how they themselves were taught. A form of educational inbreeding would be the most likely outcome. Placed in these situations teachers often grasp new ways with fervour and cling to them with passion - at least for a time. Instructional technology is an example. Audio-tapes, automated sound slide sequences, programmed instruction, teaching machines, single-concept films, television, computer-assisted instruction, all have vigorous proponents, and there is undeniable promise in these aids to learning. But a striking finding in the most recent and comprehensive survey of the use of instructional technology in the U.S.A. was that such tools, originally adopted with enthusiasm, now gather dust from disuse. Yet disillusionment is almost predictable when such aids are seized as magical solutions to complex educational problems. At best they can do no more than serve some limited component of a total programme. Definition of these components, selection of tools appropriate to the task, and development of "software" that matches need as well as 'hardware', require the contribution of experts in educational processes as well as in subject matter content. It is such a function that can be served by the staff of an Educational Practices unit, aiding staff to select and use instructional tools more wisely or more effectively, not doing the instruction for them.

Determination of whether, and how, learning has been accomplished is the principal function of evaluation. The general goals of education fall into three broad categories: knowing, doing, and feeling. Yet, as commonly carried out, the evaluation of student achievement focuses almost entirely upon knowing, as though possession of knowledge were a suitable indicator of ability to use it, or of attitudes that would lead to its employment when needed. In point of fact, not only is measurement of knowledge an incomplete assessment of multifaceted educational objectives, but when used alone it may also impede the achievement of other goals. Students learn very quickly what they must do to succeed. If success is determined by their ability to absorb and reproduce vast quantities of information, this is what they will do, even at the expense of other objectives that a staff professes to prize, but neither measures nor rewards. An examination system is thus the most potent instructional device in the staff kit, yet it is rarely employed in a fashion that systematically facilitates learning through nonjudgmental feedbacks. It is more commonly perceived by staff and students alike as an obstacle course that must be successfully negotiated at the price of admission to some professional or other vocational status.

Furthermore, evaluation usually focuses upon educational product, not educational process. While quality control is both a desirable and a necessary component of the system, it is equally important to examine the efficiency and effectiveness of programmes. Staff members do not always take kindly to this kind of evaluation. Nonetheless, dispassionate assessment of the costs and effectiveness of instructional tools, as well as the

professional skill with which these tools are employed, is a central element in a dynamic evaluation.

The functions described in relation to objectives, curriculum and instruction, and evaluation are basically supportive. The unit providing them is merely a resource to which staff may turn to in their efforts to improve the quality, as well as the quantity, of education required to meet the needs of the community the college serves. Control of education, however, necessarily remains with the staff and thus no support unit can influence education unless the staff will use it in programme planning and implementation, as well as in further refinement of their own pedagogic skills.

The major task such a unit must fulfil is probably that of working a change in staff pre-occupation with the thing they do (i.e. teaching) to concern for the thing students must do (i.e. learning).

The ultimate utility of such units, then, will be manifested through continuing programmes of staff training in the processes of education. The translation of knowing into doing requires a different kind of assistance: direct observation, analysis, and critique of teaching itself. It is not easy for adults, particularly those who have achieved teaching staff status, to subject their work to scrutiny. In carrying out this task the Educational Practices unit staff will be put to severe test. If they can observe objectively, report without implying judgement, have constructive suggestions immediately at hand, and provide continuing assistance in the refinement of individual teaching skill, then their contribution will probably be welcomed. But if they are perceived as merely critical and judgemental, as disseminating personal opinion about teaching style rather than professional knowledge about teaching effectiveness, or seem unable to provide positive and ongoing support, then their constituency will probably decline and interest fade.

#### Specific Aims of an Educational Practices Unit

An Educational Practices unit should aim to assist college teachers to become highly competent as practitioners as well as soundly based theoreticians. The ideal teacher should be able:

- \* to set specific, feasible, observable, and measurable aims in relation to the needs of the community and society, and to the standards of the employer, craft or profession concerned; to state these aims unequivocally, consistently, and in behavioural terms; and to draw up an appropriate curriculum;
- \* to apply the main learning principles to the selection of effective teaching methods in any instructional situation in his specific subject matter (for example, if the aim is to develop critical thinking, the teacher - knowing the reward - punishment dichotomy as a learning principle - will reward a student for critically analysing the teacher's management of, say, a mathematical problem rather than for slavishly copying

him);

- \* to communicate skilfully and effectively with both individual students and groups so as to develop their critical thinking and to stimulate and manage group discussions;
- \* to select and organise learning experiences, using the appropriate teaching methods and audio-visual aids and preparing his or her own material if necessary;
- \* to draw up valid, reliable, real and feasible tests to evaluate the degree to which the educational objectives have been achieved and the effectiveness of his own teaching, using the wide variety of methods available and not relying solely on the frequently unreliable oral and essay-type examinations; In particular he or she should evaluate daily educational work by scientific methods and use the feedback data for further improving the teacher learning process;
- \* to appreciate the methods of educational research as it relates to teaching small groups, practical, workshop and laboratory teaching, the teaching of skills, programmed learning and independent study and how to use its various techniques.

This list could be expanded. Incomplete as it is, it gives some idea of the basic requirements and provides a basis for an Educational Practices unit in its efforts to increase converts to modern teacher-training methods. It also provides indications of the main content of a programme an Educational Practices unit could conduct. The main elements of such a programme should include the following:

- \* evaluation of the needs (in knowledge, in attitudes, in psychomotor skills) that a person successfully completing a course would have to meet (these needs serving as the basis for setting the objectives); setting the educational objectives; and selecting or designing a curriculum in consequence;
- \* the study of learning theory and educational psychology, since without understanding the process of learning, a teacher is working in the dark;
- \* the methods and instruments of teaching; the technique of selecting and organising learning experiences to meet the educational objectives, taking into account also the characteristics of the trainees and the situation in which learning is going to take place; some elements of group dynamics constitute an integral part of this section of training;
- \* methods of testing and evaluating students' performance as well as the effectiveness of teaching programmes and the proficiency of the teaching staff;
- \* the methodology of research in education;

- \* the sociology of education as it relates to the goals and aspirations of the college and the teacher's instructional unit.

The broad aim of all the efforts of an Educational Practices unit should be to provide assistance to each teacher so that he "will not only discover new teaching techniques to improve his student's learning, and ways of evaluating their performance and his own, but will also become more sensitive to deficiencies in the organisation of courses which give rise to discontent by reducing the experience of learning from one which is exciting, illuminating and a sound preparation for living, to one of cramming facts and figures for examinations." 4.

#### REFERENCES

1. Axelrod, J., Model Building for Undergraduate Colleges: A Theoretical Framework for Studying and Reforming the Curricular-Instruction Subsystem in American Colleges, U.S. Dept. of Health, Education and Welfare, Washington, D.C., 1969.
2. MacKenzie, N., Erant, M., Jones, H.C., Teaching and Learning: An Introduction to New Methods and Resources in Higher Education, UNESCO, and the International Association of Universities, Paris, 1970, pp. 35-36.
3. Coleman, J., Equality of Educational Opportunity, Department of Welfare, Health and Education, Government Printing Office, Washington, D.C., 1966.
4. Beard, R., Teaching and Learning in Higher Education, Penguin, Ringwood, Vic., 1970, p.12.

*D. Sallen*

26.5.76

A background paper for C.I.A.E. Workshop, "The Institute in 1984",  
Queens Hotel, Gladstone, 28-30 May, 1976.

by John Carkeek.

The attached paper was prepared as part of an assignment for a subject  
I studied last year.

Although I have concentrated on only one book by a celebrated writer  
I believe I have demonstrated that the behavioural sciences can teach us  
a great deal about organizational behaviour.

I urge academic colleagues to read the literature of the behavioural  
and social sciences as well as writings in their own specialties for much  
has been written which can help us become more effective educational  
administrators.

Some of you will be dismayed at first by the lack of precision in  
much of what you read, but such is the complexity of the behavior patterns  
of individuals and aggregations of individuals in organisations. Nonetheless  
you should find reward for your efforts. At worst you should be sensitized  
to the intricacies and subtleties of individual behaviors and of organizational  
life.

There are two distinct parts to the paper. In the first part I  
summarize Herbert Simon's book Administrative Behaviour. In the second  
part I outline the insights I have gained into the operation of my own  
organization (C.I.A.E.) from my reading of this book.

## P A R T 1

### Summary of Simon, H.A., Administrative Behavior.

During the period since about the end of World War II the emphasis on administrative theory<sup>1</sup> has been on behavioral theory approaches - i.e. the behavior of people in organizations. Herbert Simon is one of the innovative writers in this period. Crane and Walker<sup>2</sup> classified Herbert Simon's works as overlapping the following disciplines - sociological/anthropological, social psychological, and psychological. In the view of the present writer such a classification fails to highlight Simon's special contribution to the science of administration. Simon's main area of concentration was upon the organization as an environment in which decisions are made, or in other words, the decision-making processes of organizations. His first major book, Administrative Behavior<sup>3</sup> was published in 1947. Prior to 1947, he had published articles in 1937,<sup>4</sup> 1944,<sup>5</sup> and 1946,<sup>6</sup> the latter being his well-known article, "The Proverbs of Administration". In the next few years he gradually refined his thinking on decision making and gave progress reports in articles written in 1950,<sup>7</sup> 1952,<sup>8</sup> 1953,<sup>9</sup> and 1955,<sup>10</sup> and in a book written in 1957.<sup>11</sup> In 1958, a further refinement of his earlier work was written in collaboration with James G. March, as a book, Organizations.<sup>12</sup> In this book, March and Simon provide a three-fold classification of theories of organization.<sup>13</sup> The first group includes propositions which assume organization members are passive instruments, i.e. the early "scientific management" or "classical" theories of management, and the economic theories of administration. The second group includes propositions which assume members bring to their organizations, attitudes, values and goals - i.e. the "human relations" and "politics" approaches to the study of organizations. The third group includes propositions which assume that organization members are decision makers and problem solvers. It is in this latter group that Simon's work Administrative Behavior should be placed.

In Administrative Behavior, Simon demonstrated that theorists up to that time viewed an organization through their own disciplines, and largely ignored the contributions of writers in other disciplines. Simon took pains to point out the weaknesses of these approaches by showing two groups of limitations. The first limitations were the abstractions from reality that were often used



as the bases of theoretical works; one of the most celebrated is the economist's "economic man", whose behavior is assumed to be far more rational and calculating than any real world man would or could ever be. In Simon's view, inferences about organizations based on such unlikely assumptions as the concept of "economic man", are almost useless. Mouzelis,<sup>14</sup> however, points out that Simon's criticism, although useful in drawing attention to the tunnel vision of many writers, nevertheless was not fully valid, because behavioral theories of organizations and economic theories of organizations are really incompatible. Second, Simon pointed out that the principles of administration,<sup>15</sup> which had been handed down from the early writers such as Fayol,<sup>16</sup> Urwick,<sup>17</sup> and Reiley and Mooney<sup>18</sup> were mere "proverbs",<sup>19</sup> each having an equally plausible opposite and each being of little value in explaining and predicting organizational behavior. So Simon attacked the narrow vision of contemporary and earlier writers on theories of administration. But his contribution was more than as a critic. His major contribution was his belief that there is greater rationality in organizational behavior than other writers had discovered. To Simon, "behavior in organizations is neither completely emotive nor completely aimless. Organizations are formed with the intention and design of accomplishing goals; and the people who work in organizations believe, at least part of the time, that they are striving towards these same goals."<sup>20</sup> One must not confuse Simon's concentration on rationality with the limited view of "rational" organizational behavior held by the early scientific management writers.<sup>21</sup> Simon's contribution is that he made rationality more meaningful and more applicable to the individual member and to the organization than the early scientific management writers had seen it. Nicos Mouzelis<sup>22</sup> has written that

"Simon, in his effort to account for both rational and non-rational aspects of organizational behaviour, tried to construct the model of rational choice combining realism and analytic rigour, a conceptual framework which could refer to the actual properties of human beings, and at the same time retain some of the formal clarity of the economic model."

The outcome of Simon's reasoning was the creation of a new stereotype "administrative man",<sup>23</sup> one who must make organizational decisions in

imperfect conditions. The environment in which Simon's administrative man operates has two major groups of constraints.<sup>24</sup> First, time available for decision making is limited. Second, all the options available to the decision maker are seldom known to him, and to expect him to know all the options would be unrealistic. So the decision maker must "satisfice", and make sub-optimal decisions. However, Simon showed that the decision maker can be aided in two ways. First, the organization can prescribe the 'given' options between which to choose (i.e. the constraints to "rationality"). Second, three categories of aids to organizational decision making can be provided to assist the decision maker. The first group of aids includes those which help to increase the range of options to be considered. Operational research studies recorded by writers such as Beer in 1966<sup>25</sup> and 1967,<sup>26</sup> Lawrence in 1966,<sup>27</sup> and Bane in 1968,<sup>28</sup> are examples of developments in this field. The second group of aids includes those that help to foresee the future. Systems analysis, network analysis, critical path analysis, and a wide variety of computer packages, including packages for simulations, which have been reported upon by writers such as Lockyer 1969,<sup>29</sup> Stewart 1969,<sup>30</sup> and Argenti 1969,<sup>31</sup> are examples of developments in this field. The third group of aids includes those that help in making the choice between alternative outcomes. Examples include resource allocation decisions, cost-benefit analysis, organizational research; writers such as Mischon (1971)<sup>32</sup> have written at length on this subject.

Since the writing of Administrative Behavior in 1947 Simon has collaborated with many other writers,<sup>33</sup> one of whom is mentioned above,<sup>34</sup> in extension of his earlier work. But to the present writer's mind, the most important work of Simon's was really his first book, Administrative Behavior. Not only did this volume evaluate much of the written works on organizations up to the time of Administrative Behavior, but also it established a framework for much of the writing that followed. In particular, decision-making approaches to the study of organizations could be attributed largely to Simon's pioneering work. Decision making approaches to organizational behavior studies are especially important today especially for those who have ready access to electronic digital computers.

P A R T 2

Insights into the operation of my own organization (C.I.A.E.)  
that I have gained from my reading of Administrative Behavior  
by Herbert A. Simon.

The knowledge, wisdom and experience one brings to bear on any administrative situation is a composite of one's academic background and work experience. Often it is difficult to account for the extent to which one's understanding of a problem, or one's capacity to make a decision, depends upon one's experiences in other organizations, one's reading, or one's enrolment in formal courses of study. Likewise, my understanding of the operation of my own organization, C.I.A.E., depends on many factors. In this paper I attempt to outline but one of many sources of influence, Herbert Simon's concept of the organization, as an environment in which decisions are made, which he developed in Administrative Behavior and subsequent writings.

I agree with Robert Owens<sup>35</sup> statement that Herbert Simon's book "opened a whole new vista of administration theory."<sup>36</sup> Although somewhat "old-hat" now in the manner in which his ideas were presented in Administrative Behavior, the Simon thesis nonetheless offered a means of viewing an organization in terms of decision making and suggested for the first time that the structure of an organization should be such as to facilitate the making of decisions characteristic of that kind of organization. When considering decision-making at C.I.A.E. I am prompted by my reading of Herbert Simon to ask the following questions.<sup>37</sup> What are the goals or objectives of C.I.A.E.? What kinds of decisions must be made to permit the controlled operation of C.I.A.E. toward achievement of its goals? Does the organizational structure of C.I.A.E. facilitate the making of the kinds of decisions mentioned above? Is decision-making a rational process at C.I.A.E.? What are the limits to rationality in decision making at C.I.A.E.? Who makes decisions? What is the degree of delegation from Council to Director, and Director to his subordinates? Does the Director delegate both responsibility for making decisions and authority for carrying them out? Where are key decisions made, within or without C.I.A.E.? How are decisions made? Upon what data are decisions made? Is information for decision-making

reliable, timely, relevant? What aids to decision making are available such as data banks, computers, expert advisory bodies? How effective are decisions? How long do decisions stand or are they readily reversed, or vetoed? Does the administrative organization permit or facilitate action to be taken on decisions made by legitimate C.I.A.E. decision makers? Answers to questions such as the above provide much of the basic information required to understand the operation of C.I.A.E. To Herbert Simon must be given credit for suggesting what questions should be asked.

An especially useful outcome of Herbert Simon's work with regard to an educational institution may be gained from consideration of the importance he gave to both horizontal and vertical division of labour with an educational institution.<sup>38</sup> Division of labour in a school or college is normally horizontal, various tasks being distributed to individuals according to their particular competences and specialities. In teaching institutions academic staff generally are regarded as having similar experience, ability, seniority, and power within the organization because, in their relationship with their classes, they have similar responsibilities and make similar types of academic decisions. From the viewpoint of institution-wide decision making, Simon suggests that vertical division of labour is more important than horizontal. Simon pointed out that decisions regarding general policy making should be made by the top echelon, decision making regarding policy specification should be made by the middle ranks in the hierarchy, and decision making at the actual work performance level should be made by those occupying lower ranks in the organization, including the operatives themselves.<sup>39</sup> Thus members of an organization should be able to be classified according to the levels they occupy in the organization hierarchy and according to the kinds of decisions they make. It follows that a knowledge of either the levels of decision making power or one's position in the hierarchy should be a good indicator of the other. But at C.I.A.E. congruence between one's position and one's decision-making power does not necessarily follow. The point is taken up again below.<sup>40</sup> A further means of isolating decision-making power in organizations is according to the proportion of time

each organization member spends on decision making as distinct from implementing decisions of others. Combining the horizontal and vertical models of division of labour, Simon postulated that a well planned organization would be an efficient tool for making and implementing decisions.<sup>41</sup> The rules or job specifications of all members of the organization would prescribe the areas in which they had authority and responsibility for making and implementing decisions of the organization. This description suggests some of the characteristics of the typical "ideal type" bureaucracy<sup>42</sup> - a neat division of labour with carefully prescribed job specifications and a tight system of rules by which the organization is governed. But these are only a small part of Simon's total concept. To Simon, a strict hierarchy is not necessarily the ideal organization structure for an educational institution, or indeed for any organization. He recognizes the latent dysfunctional consequences of bureaucratic organization and argues that both the design of the organization and the preparation and training of its members must be such as to facilitate the achievement of the organization's goals. His recipe for success in organizational design includes the following points,<sup>43</sup> which, if used in the interrogative greatly help one to isolate points of strength and weakness in C.I.A.E.'s present structure and operation. Is the organization planned in such a manner that "deciding" and "doing" are distinguished? Are organization members aware of the distinction?<sup>44</sup> In C.I.A.E. the Council, the Management Advisory Committee (roughly the equivalent of a University Professorial Board) and the Board of Studies are clearly "deciding" bodies, and all see their roles as deciding what ought to be done rather than acting as executive bodies. Characteristic of the "deciding" bodies is that there exists a hierarchy of positions and a complex system of committees, the membership of which tends to be representative of the hierarchy rather than representative of professional opinion or professional competence, so that although the structure implies a particular form of management, in fact, decision making is restricted mainly to senior members of the hierarchy, with the result that it has dysfunctional consequences.<sup>45</sup> Studies of hospitals, universities and research organizations<sup>46</sup> demonstrate that institutions such as C.I.A.E. should tend more toward a collegial rather

than toward a closely supervised climate and toward a participative rather than toward a "managed" decision-making environment.

Are senior organization members aware of the contradictions in much of the writings on organizations and of the variety of possible views that might be held by organization members on the operation of their own organization?<sup>47</sup> At C.I.A.E. few members or staff and Council have studied organizational behavior, and few are members of regular attenders of workshops and seminars for senior managers run by bodies such as Australian Institute of Management, the Administrative Staff College, the Melbourne University Summer School in Business Administration or conferences on educational administration. No Head of Department, or no Director of C.I.A.E. held a prior position of such seniority before his appointment to C.I.A.E. Can organization members distinguish between "value" elements and "factual" elements in decision-making? Furthermore, do they understand the distinctions between questions of "policy" and questions of "administration"?<sup>48</sup> There are examples of failures of individuals to distinguish their own value premises from those of the institution, especially in areas such as staffing, and staff travel assistance. Council members and employees have confused "policy" and "administrative" matters; for example, Council is required by the B.A.E. to be involved in day to day decisions, such as justification for purchase of relatively inexpensive equipment, and academics have at times assumed they could make policy decisions such as attempting to impose student quotas without Council's prior approval. Do the decision makers understand the psychology underlying individual and group decision-making, the shortcomings of the human mind in making rational decisions, and the extent to which organizational constraints affect the decision-making capacity of organization members?<sup>49</sup> These questions relate to knowledge in the behavioral sciences. Few members of Council or senior staff have academic qualifications or training in the behavioural sciences.

To what extent do organization members, especially the decision makers, understand that "the activities of a group of people become organized only to the extent that they permit their decisions and their behavior to be

influenced by their participation in the organization"?<sup>50</sup> Do the decision-makers understand, or have theories about, how the organization can, or should, fit the individual's behavior into an overall pattern - that is, how the organization could or should influence the individual's decisions?<sup>51</sup> Both these questions can be answered simultaneously. As most staff members of C.I.A.E. have spent most of their working lives in hierarchical organizations they are not unduly concerned in an overt sense about Simon's discussion of authority, except that it is assumed that authority comes from above.<sup>52</sup> Senior staff are greatly concerned, however, about the importance of inducements and incentives to staff as means not only of boosting staff morale, but also as a means of improving the performance of the whole organization.

Are organization members, especially senior members, aware of the need for full and free formal and informal communications within the organization, and do they succeed in keeping the messages flowing?<sup>53</sup> Internal and external communication difficulties are often debated at C.I.A.E. but seldom resolved. Being a young rapidly growing organization C.I.A.E. is subject to continual changes in structures which mystify many staff and students, especially as training, a useful means of transmitting job "know-how"<sup>54</sup> is little used.

To what extent do the policy makers understand, and accept, the necessity for operational efficiency in an educational institution? How are they attempting to measure "efficiency", and is progress being made toward greater efficiency of operation?<sup>55</sup> The major interest in financial affairs of the policy makers seems to be to ensure that all funds available each year, or each triennium, are spent for lawful purposes within the allocated period. They, along with departmental heads, appear to be little concerned with promoting "business-type efficiency" or introducing measures of divisional performance. For example, the financial reports produced for Council and the Board of Advanced Education are inadequate for financial decision making and control. Only rough approximations may be made for operating costs of departments or divisions for there is little or no recharging for services or goods supplied from one department to another or

from administration to teaching departments. Accounting is centralized in some areas and decentralized in others. Financial planning tends to be ad hoc, and decisions tend to be subject to short-run changes.<sup>56</sup>

To what extent is the organization developing organizational loyalty or identification of its members to the goals of the organization?<sup>57</sup> Recent writers such as Owens<sup>58</sup> and Baldrige<sup>59</sup> argue that either a "collegial" model or a "political" model is more appropriate than a "bureaucratic" model for decision-making in an academic institution. The C.I.A.E. model, being more bureaucratic tends to alienate academics from administrators and tends to alienate academics from the organization itself rather than to encourage loyalty. The absence of institutional goals in operational terms<sup>60</sup> is a further contributor to the problem of achieving goal congruence of individuals and the organization.

In summary my reading of Herbert Simon's Administrative Behavior has helped me to view my own organization more critically and to seek deeper insights into the true meaning of terms such as "bureaucracy", "hierarchy", "decision", "efficiency", and several other discussed above, as well as the relevance of the structure of the organization to the kinds of decisions that have to be made and implemented by the organization. My reading has also convinced me that the individuals within the organization, and the organization itself as an open system, to some extent, at least, seek a rational base for action, and seek to maintain the organization in equilibrium.



THE CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

DEPARTMENT OF BUSINESS

A submission to the Gladstone Workshop

"THE INSTITUTE IN 1984"

A profile of the Institute

It is suggested that C.I.A.E. be not regarded as a "community college" (even in the broadest sense) because of the possible confusion with the goals and roles of the two year post-secondary school Community Colleges or Junior Colleges in the U.S.A. The present and likely future teaching role of C.I.A.E. is more akin to (but not the same as) an Australian University or a large multi-purpose C.A.E. than it is to an American Community College, as suggested by the following statement of awards available at C.I.A.E.

C.I.A.E. Awards as at 26/5/1976

Award	Number of such awards	Description	
PG 2	1	2 years P.G.	N.B. Growth is anticipated more at
PG 1	1	1 year P.G.	UG1 level and above
UG 1	7	3 years tertiary	rather than below
UG 2	3	3 years "	UG1 level.
UG 3	1	2 years "	

Current practice and aspirations in the areas of research and consulting suggest that C.I.A.E. is again more like a University or a large, multi-purpose C.A.E., than an American-type Community College.

In terms of professional training (such as involvement in short courses, seminars, workshops, in-service training), and community services (such as adult and continuing education, provision of broadening programmes in music, art, drama, public lectures and provision of venues for meetings, sporting fixtures etc.) C.I.A.E. is already emerging as an important centre in Central Queensland. But these roles are not dependent upon C.I.A.E. being regarded as a "community college" or other specific category of institution. Indeed, Australia's oldest tertiary institution, University of Sydney, has probably the most highly developed facilities for adult and continuing education in Australia, as well as being highly regarded for its academic excellence.

At this conference little will be gained by arguing whether C.I.A.E. is a "community college" or something else, but if a generic term is required it is suggested that "REGIONAL COLLEGE" is more appropriate than "community college".

A profile of the Department of Business

The following is suggested as an appropriate profile for business education at Central Queensland's regional college in 1984:

(i) Courses

(a) Leading to awards

Master of Business (by course and dissertation, or by thesis)

(a) Leading to awards (contd.)

Graduate Diploma in Business (specialist courses for students with appropriate under-graduate pre-requisites)

Special streams in Accounting

Personnel Administration and industrial relations

Marketing and distribution

Public Administration (including educational administration)

Graduate Diploma in Management (general management course not dependent on management subject pre-requisites)

Bachelor of Business

With a core of Business subjects and optional studies in the following fields; accounting, data processing, economics, personnel administration, marketing, public administration, and government(including local government), tourism.

(b) Short courses

Related to needs of the region as they become apparent, but likely to include small business management, tourism, problems of inventory management, working capital management, capital budgeting, marketing, public relations, beef cattle industry, E.D.P., local government.

(ii) Students

Full-time - Central and North Queensland, other Australian states, S.E. Asia (N.B. further residential accommodation needs, including serviced apartments for single students, married couples, and couples with families).

Part-time students in Rockhampton area, already in employment, and growing numbers of housewives (N.B. the need for creche), and adults with part-time jobs undertaking re-training courses.

Part-time external students, especially in graduate courses.

Learning needs - pre-vocational, but growing numbers in re-training and post-graduate study (i.e. higher age group students).

Depending on funds available EFTS in business courses could be 600 by 1984.

(iii) Staff

Continuing need for up-dating expertise must continue to be recognized therefore C.I.A.E. must encourage research, study leave scheme must be continued and travelling allowances improved.

More specialists needed - full-time by permanent appointment or short-term contract and part-time by intensive short-term sessions (one or several weeks by visiting specialists) or regular sessions (N.B. importance of creche for married women lecturers and tutors).

Good teaching should be encouraged through an on-campus education unit.

Industrial consulting will grow in importance - all staff will be expected to teach, research and hopefully consult.

One or more graduate assistants to assist chairman of school.

(iv) Administration of the teaching/learning activities

School or Faculty with (a) teaching departments organized on a discipline basis (Accounting, Management, Government, and possibly Economics and Quantitative Methods, and Information) (senior staff appointments).

(b) co-ordinators of courses i.e.  
chairman Graduate programmes  
Bachelor of Business programmes  
Short course and continuing education programmes,

(c) possibly also a Chairman of external studies programmes to negotiate with Director, Department of External Studies.

(v) Physical Facilities required

Greatly enlarged library holdings - books, journals, reference aids in C.I.A.E. library plus immediate access to major Australian libraries.

Enlarged computer installation at C.I.A.E. and connection to other systems.

More tutorial rooms and spaces suitable for "conference - type" teaching.

Residential facilities and creche (mentioned above).

J.R.T. Carkeek.  
27th May, 1976.

---

THE CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

PLANNING WORKSHOP - 28-30 MAY, 1976

CURRICULUM DESIGN AND DEVELOPMENT IN TERTIARY EDUCATION

Curriculum design and development are difficult exercises. In the past decade colleges of advanced education throughout the country of necessity have had to rely on relatively inexperienced, untrained people to carry out an impressive array of course proposals. There is an increasingly held view that teaching staffs who have curriculum development responsibilities should be assisted by persons who are specialists in the field.

This paper, a survey of some of the most influential writings on the subject, is offered as a contribution to consideration of the need for specialist curriculum design and development staff and the roles they could play in a college of advanced education.

Curriculum Development Essentials

Effective course development necessarily always proceeds from a thorough understanding of student needs. Systematic approaches to teaching and learning can only realistically advance on this basis. The most appropriate unit of curriculum to tackle at any one time is usually the course. A course is regarded as a separately time-tabled or separately assessed teacher - learning unit occupying from one half to one quarter of a student's time over one or two semesters.

A course is a system in which students, teachers and learning materials interact. The purpose of course development is to optimise the system.<sup>1</sup> The initial problem is to define the constraints on the system and to define what is to be optimised. The constraints on the system primarily affect its input. The student input, for example, will have certain definite characteristics in terms of knowledge, abilities and attitudes. The input of teachers and materials into the course is less rigidly determined, though it would be rare in the operation of a college to have a programme budgetting system which allocates a fixed budget to a course and does not specify how much of it should be spent on teachers. Normally there will be constraints on how many teachers should participate and on which teachers should participate, constraints on expenditure on learning materials, and constraints on the availability of learning spaces.

The problem of optimisation is also concerned with the system's

output. There must be clear expectations of what students can do at the end of the course. Several theoretical alternatives exist. One aim could be to increase effectiveness by improving the student's performance at the end of the course. Or the aim can be to improve quality by raising the levels of the objectives of the course. In practice, existing measures of performance at the end of the course are likely to be inadequate. It will therefore be difficult to measure changes in output. The best policy is usually to set general guidelines for optimisation at the beginning but not to make irrevocable decisions on these until after work on the clarification of objectives has been completed. Even then the decisions may have to be altered if the selection of objectives is later shown to be over-ambitious. But some constraint on the objectives of a course cannot be ignored. These are the requirements of the following course and of potential employers but they are not necessarily as rigid as is sometimes assumed.

It must be admitted that much still has to be discovered about teaching and learning. This indicates that if due attention is paid to what little is known about teaching and learning, trial and error becomes the only remaining method of improvement. Further information about how to improve a "prototype" course can best be obtained from trying it out and evaluating it.

#### The Initial Brief

The essential components of a brief for a course development team would contain the following information:

1. The logistic input for the course itself and a list of the constraints affecting its allocation (this includes the operational costs allowed for the course, limitations on space, personnel, etc.)
2. An estimate of the student input in terms of numbers, level of attainment, and so on (this will need to be made more precise in an early stage of the course-development process).
3. Guidelines on the intended outcomes of the course (these also will need to be refined later).
4. Guidelines on what is to be optimised. Is the cost to be reduced? Is the effectiveness to be improved? Are the outcomes to be expanded to include more ambitious objectives?
5. A budget for the course-development process itself, including the costs of the time to be contributed by each member of the course-

development team.

6. A commitment to the use of evaluation for at least some parts of the course, i.e. to at least one substantial revision of some of them.

Figure 1 depicts the main stages of the course development process. After the initial brief it is necessary to specify the objectives of the course in greater detail and to develop appropriate methods of assessment. Also important at this stage is a more useful analysis of the student input which may involve some testing of students to see what knowledge and abilities they bring to the course. Only then is it possible to set out the main teaching problems inherent in a course of this type and to estimate

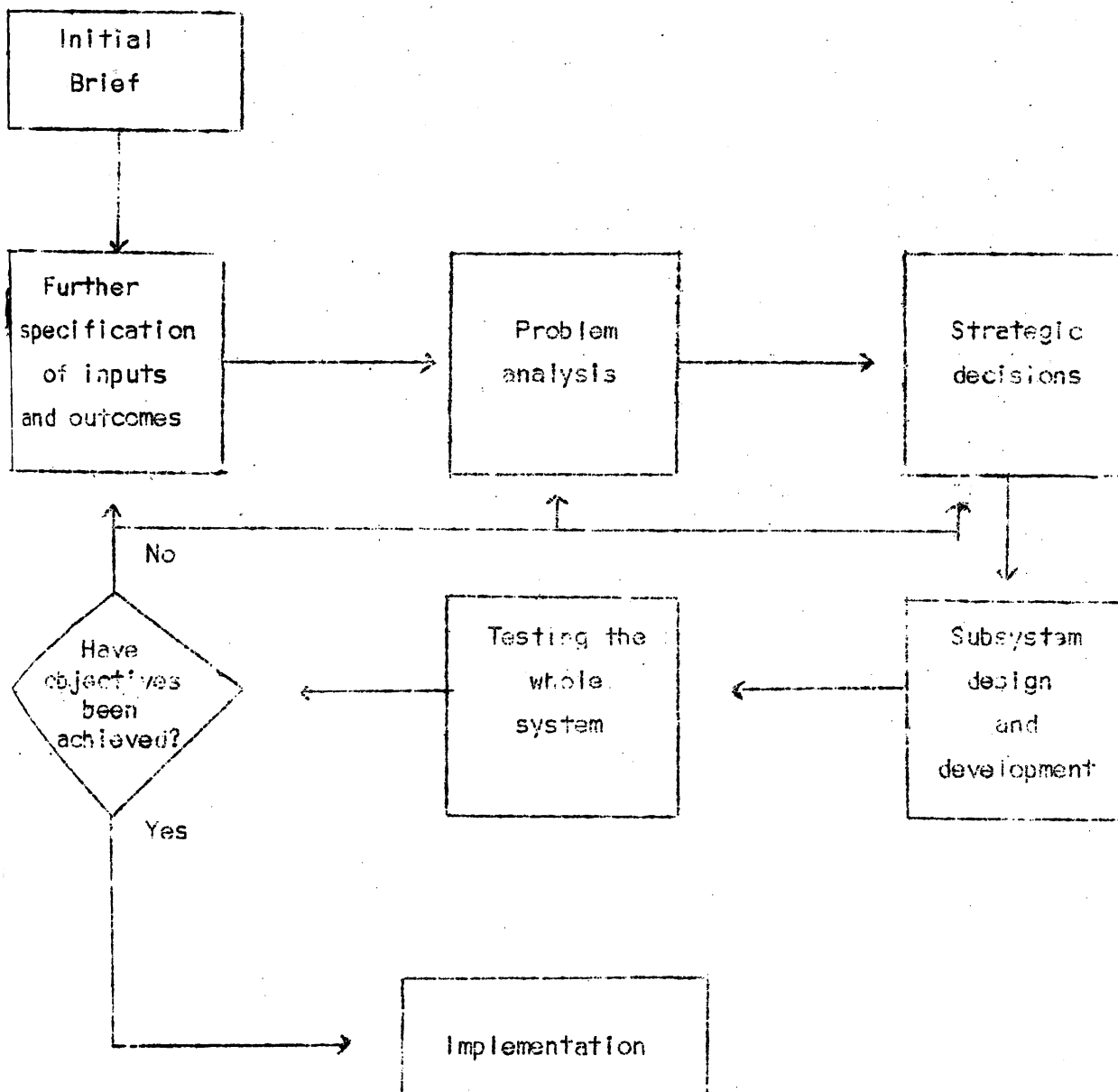


FIGURE 1: Main Stages of Course Development

rich areas of the course are likely to cause the greatest difficulty. After this preliminary problem analysis the main strategic decisions can be taken:

These decisions involve:

- (a) separating the course parts or subsystems and defining the intended outcomes of each subsystem;
- (b) making broad decisions about the kind of teaching to be used in each part of the course;
- (c) allocating the operational costs of the course after implementation in the light of the above; and
- (d) deciding how much attention the course development team should give to each subsystem and allocating resources for the development budget accordingly.

Each subsystem can now be designed or developed. Some may go through a number of revisions but others of less priority may just be designed and implemented without further change. Finally the whole course is assembled, tried as a whole, and implemented if the try-out is satisfactory.

#### Further Specification of Inputs and Outcomes

When one is seriously concerned with the quality of learning the question of objectives is of prime importance. One of the strongest arguments for giving considerable attention to objectives comes from those concerned with the problems of assessment<sup>2</sup>. There is a pressing need in tertiary education to design more valid instruments of assessment which measure what the teacher wishes to teach, but this can only be done once the teacher has specified his objectives. It is becoming apparent that some methods of teaching and learning are better for some objectives, and other methods are better for other objectives.

The problem of communication is also an element. Even though a senior lecturer's closest colleagues may know exactly what he is teaching when he lectures on a topic, his junior colleagues may be less certain, and his students will have very little idea of what is coming. It is difficult for them to focus their attention if they do not know what is to be learnt and the syllabus or subject outline gives them little guidance. Thus the problem of evaluation, the problem of selection of teaching methods and the problem of communication are all dependent upon the clarification of objectives. 3

Teachers are usually prepared to discuss their aims in general terms and indicate what they are trying to teach. It is rare to find the objectives of any programme, course or subject stated clearly, certainly not with sufficient clarity for it to be possible to judge the success of the teaching by comparing its outcomes with the original objectives.

A major impediment to progress is that the curriculum is based primarily upon tradition. What seems to the participants like a genuine discussion of aims will often seem to the outsider to refer to only the icing on the cake, with the unoriginal modifications that the teaching staff make

to a traditional curriculum they take for granted. Often "aims" mean no more than normative statements by teachers about the "nature" of tertiary education.

*"Perhaps the most useful way to approach a discussion of the problem of objectives is to list a number of general statements of aims and to attempt to specify some of the possible interpretations. Some of the most frequently suggested aims are: to make good chemists, historians, etc., to teach students to think; to give students a fundamental understanding of physics, sociology, etc., to train students for work as a doctor, engineer, lawyer, teacher, etc., to encourage a rational approach to controversial problems and issues; to develop a spirit of criticism; to produce good citizens; to get students to think imaginatively; to develop the student's creative talent; and to acquaint the student with the great ideas of mankind.*

*Most of the aims listed above involve three distinct kind of objectives: (a) objectives related to knowledge and comprehension of content; (b) objectives related to the development of intellectual abilities; and (c) objectives relating to the inculcation of attitudes. Although all three types of objectives are involved in any given teaching-learning situation the relative emphasis placed upon them varies considerably.<sup>4</sup>*

Content objectives usually receive the greatest emphasis, because courses are normally described and discussed in terms of their syllabi. The weakness of this technique, so widely employed in tertiary education institutions, is that it lists the topics to be covered but gives little indication of the level at which any particular piece of content is expected to be understood or even applied.

There have been a number of attempts to devise classification schemes for intellectual abilities or levels of understanding. None of them is ideal. They certainly do not have the status of theories of knowledge but many are of considerable practical use in clarifying ideas about objectives. In particular they can be used to build profiles of a curriculum in terms of the different kinds of objectives and to guide decisions about the relative emphases to be placed on them.

The scheme that has received the greatest attention has been the taxonomy of Educational Objectives compiled by Bloom and his colleagues.<sup>5,6,7</sup> This recognises three major classes of objectives - cognitive, affective and psychomotor - and has developed classification schemes for the cognitive and affective domains. The cognitive domain is set out in terms of levels of understanding and proceeds from the simplest to the most complex.

Whatever the sources for which they are derived, it is helpful to organise objectives under Bloom's three broad headings: cognitive (knowledge); psychomotor (skills); and affective (attitudes and values).



teachers are generally more adept at outlining the knowledge they want students to acquire than the skills and attitudes they expect them to exhibit at the conclusion of the course of study. But even in the domain of knowledge, such descriptions are more likely to outline what should be presented to students rather than what they should be able to do with what they learn.

The several levels of "knowing" in the Bloom classification are summarised in Table 1.

Table 1: Taxonomy of Educational Objectives: Cognitive Domain\*

- |     |  |
|-----|--|
| 1.0 | knowledge (of specifics, of ways and means of dealing with specifics, and of universals and abstractions in a field).<br>Ability to recall (retrieve) the appropriate material.  |
| 2.0 | Comprehension (translation, interpretation, and extrapolation).<br>Ability to comprehend a communication, to make use of an idea without necessarily relating it to other ideas or seeing its fullest meanings. Requires knowledge.                              |
| 3.0 | Application.<br>Ability to use facts, generalisations, principles, and theories in concrete situations.<br>Requires knowledge and comprehension.   |
| 4.0 | Analysis (of elements, relationships, and of organisational principles). Ability to break down a body of data or a problem into component parts and to recognise and interpret findings.<br>Requires knowledge, comprehension, and application.                  |
| 5.0 | Synthesis (of a unique communication, of a plan or set of operations, or a set of abstract relationships).<br>Ability to assemble parts into a unified and coherent whole.<br>Requires knowledge, comprehension, application, and analysis.                      |
| 6.0 | Evaluation (of internal and external evidence).<br>Ability to judge the reliability, utility, and merit of principles, procedures, and methods on the basis of established criteria.<br>Requires knowledge, comprehension, application, analysis, and synthesis. |

---

\* Adapted from Bloom (1956).<sup>5</sup>

In the affective domain a comparable taxonomy has been developed.<sup>8</sup> This classification has generally been far more difficult for teachers to grasp and to employ than the cognitive classification system. The reason may be reflected in a tendency to think of attitudes and values as good or bad, rather than as levels of readiness to respond in a desirable way. There is also the concern expressed by some teachers as well as students, that conscious fostering of specified attitudes is an invasion of personal values that has no place in a formal educational programme. In fact attitudinal learning goes

on constantly, and probably has a more profound influence upon future behaviour than the informational input to which so much attention is directed. If there are attitudes towards customers or clients, towards colleagues or work mates, and towards the job or profession that students should learn, then it is sensible for teaching units not only to make those attitudinal goals explicit, but also to specify the level of performance that is expected just as they must do with cognitive (knowledge) objectives. The several levels of feeling and valuing are summarised in Table 2.

Table 2: Taxonomy of Educational Objectives: Affective Domain\*

- |     |  |
|-----|--|
| 1.0 | Receiving<br>Becoming aware of an idea; being willing to receive it and to give it some attention.   |
| 2.0 | Responding<br>Being willing to accept an idea, to respond to it, and even to gain some measure of satisfaction in this response.<br>Requires receiving.  |
| 3.0 | Valuing<br>Accepting an idea or behaviour as worthy, exhibiting preference for it over others, and developing a sufficient commitment to promote it.<br>Requires receiving and responding.   |
| 4.0 | Organisation<br>Conceptualising a value, casting it into a set of related values in some coherent and personally acceptable fashion, and acting upon it even under difficult conditions.<br>Requires receiving, responding, and valuing.                                     |
| 5.0 | Characterisation by a value complex.<br>Integration of the value into a total philosophy in such a way that it becomes a consistent and predictable behavioural characteristic.<br>Requires attending, responding, valuing, and organisation (whether explicit or implicit). |

---

\* Adapted from Krathwohl (1964). 8.

The development of a classification scheme for skills has proved to be very difficult, largely because of the variety of activities that fall under the general psychomotor heading and the problem of identifying common elements in such different skills as those which are visual, tactile, or motor, for example.

The taxonomy summarised in Table 3<sup>9</sup> represents the best effort to date to introduce some order into this complex arena. Obviously these objectives are highly important in such fields as technical training.

Table 3: Taxonomy of Educational Objectives: Psychomotor Domain\*

- 1.0 Perception.  
Becoming aware of objects, qualities, and relations through sensory input (auditory, tactile, visual, taste, smell, or kinesthetic), recognising cues, and relating to potential actions.
- 2.0 Set.  
The mental, physical, or emotional readiness to initiate some kind of action.  
Requires perception.
- 3.0 Guided response.  
An overt action that follows selection of an appropriate response and that may represent imitation or trial and error.  
Requires perception and set.
- 4.0 Mechanism.  
Action has become part of a repertoire and can be employed with confidence under most circumstances.  
Requires perception, set, and guided responses.
- 5.0 Complex overt response.  
Action performed without hesitation and with a high degree of skill since uncertainty has been dispelled and automatic performance with continuous internal feedback and autonomous refinement has been achieved.  
Requires perception, set, guided response, and mechanism.

---

\* Adopted from Simpson (1966) <sup>9</sup> .

The following is an example of Bloom's classification applied to cognitive behaviour in mathematics. <sup>10</sup>

SMSE Classification of Mathematical Objectives

- |                      |  |
|----------------------|--|
| <i>Knowing:</i>      | Knowing terminology, facts, and rules.   |
| <i>Translating:</i>  | Changing from one language to another; expressing ideas in verbal, symbolic, or geometric form; codifying patterns.  |
| <i>Manipulating:</i> | Carrying out algorithms; using techniques.   |
| <i>Chorsing:</i>     | Making comparisons; selecting appropriate facts and techniques; guessing; estimating; changing one's approach; selecting new symbolism.  |
| <i>Analysing:</i>    | Analysing data; finding differences; recognising relevant and irrelevant information; seeing patterns; isomorphisms, and symmetrics; analysing proofs; recognising need for additional information; recognising need for proof or counter example. |

- Synthesising:* Specialising and generalising; conjecturing; formulation problems; constructing a proof or a problem.
- Evaluating:* Validating answers; judging reasonableness of answers; validating the solution process; criticising proofs; judging the significance of a problem.

A leading contributor to the sophistication and benefits of educational objectives classification schemes has been Michael Scriven. 11. His major contribution to the Bloom scheme is his identification of three levels of description for educational objectives:

- (a) the conceptual level which is relatively abstract is the level at which discussions of "breadth v width" and "knowledge v comprehension" are carried out and the "structure" of the course is outlined;
- (b) the manifestation level which is concerned with ways in which a student's achievement of an objective can be demonstrated; and
- (c) the operational level which defines an objective in terms of the precise means by which it is to be assessed.

Scriven's classification of the conceptual and manifestational level is as follows:

Conceptual Description of Educational Objectives

- 1. Knowledge of:
  - (a) Items of specific information including definitions of terms in the field.
  - (b) Sequences or patterns of items of information including sets of rules, procedures or classifications for handling or evaluating items of information (we are here talking about mere knowledge of the rule or classification and not the capacity to apply it).
- 2. Comprehension or understanding of:
  - (a) Internal relationships in the field, i.e. the way in which some of the knowledge claims are consequences of others and imply yet others, the way in which the terminology applies within the field; in short what might be called understanding of the intrafield syntax of the field or subfield.
  - (b) Interfield relations, i.e. relations between the knowledge claims in this field and those in other fields; what we might call the interfield syntax.
  - (c) Application of the field or the rules, procedures, and concepts of the field to appropriate examples, where the field is one that has such applications; this might be

called the semantics of the field.

3. Motivation (attitudes/values/affect):
  - (a) Attitudes towards the course, e.g. acoustics.
  - (b) Attitudes towards the subject, e.g. physics.
  - (c) Attitudes towards the field, e.g. science.
  - (d) Attitudes toward material to which the field is relevant, e.g. increased scepticism about visual advertising claims about "high fidelity" from miniature radios (connection with 2(c) above).
  - (e) Attitudes towards learning, reading, discussing, inquiring in general, etc.
  - (f) Attitudes towards the teaching unit.
  - (g) Attitudes towards teaching as a career, teacher status, etc.
  - (h) Attitudes towards (feeling about, etc.) the teacher as a person.
  - (i) Attitudes toward class-mates, attitudes toward society (obvious further sub-headings).
  - (j) Attitudes toward self, e.g. increase of realistic self-appraisal (which also involves cognitive domain).
4. Non-mental abilities:
  - (a) Perceptual.
  - (b) Psycho-motor.
  - (c) Motor, including e.g. some sculpting skills.
  - (d) Social skills.

5. Non-educational variables:

There are a number of non-educational goals, usually implicit, which are served by many existing courses and even by new courses, and some of them are even justifiable in special circumstances as- e.g. in a prison.

Manifestation Dimensions of Criterial Variables

1. Knowledge:

In the sense described above, this is evinced by:

- (a) Recital skills.
- (b) Discrimination skills.
- (c) Completion skills.
- (d) Labelling skills.

Note: Where immediate performance changes are not discernible, there may still be some subliminal capacity, manifesting itself in a reduction in relearning time, i.e. time for future learning to criterion.

2. Comprehension:

This is manifested on some of the above types of performance and also on:

- (a) Analysing skills, including laboratory analysis skills,

other than motor, as well as the verbal analytical skills exhibited in criticism, precis, etc.

- (b) Synthesising skills.
- (c) Evaluation skills, including self-appraisal.
- (d) Problem-solving skills (speed-dependent and speed-independent).

3. Attitude:

Manifestations usually involve simultaneous demonstration of some cognitive acquisition. The kinds of instrument involved are questionnaires, projective tests, Q-sorts, experimental choice situations, and normal life-time choice situations (choice of college major, career, spouse, friends, etc.). Each of the attitudes mentioned is characteristically identifiable on a passive to active dimension (related to the distinctions expounded on in Bloom, but disregarding extent of systematisation of value system which can be treated as a (meta-) cognitive skill).

4. The non-mental abilities:

All are exhibited in performances of various kinds, which again can be either artificially elicited or extracted from life-history. Typical examples are the capacity to speak in an organised way in front of an audience, to criticise a point of view (not previously heard) in an effective way, etc. (This again connects with the ability conceptually described under 2(c).)

Sources of Objectives

A search of the material about the objectives towards which tertiary education programmes are directed reveals a common characteristic. The material discloses an impressive array of statements that describe general programme goals. Only rarely do they incorporate a degree of specificity sufficient to pin-point the nature of instruction that teachers must offer, or the kind of behaviour that students must ultimately demonstrate.

It is likely that this outcome reflects the difficulty of achieving specificity rather than conscious effort to avoid it. Most teaching staff are neither trained in the techniques by which objectives can be developed both rationally and systematically nor much inclined towards devoting to the task the time required to complete it. Since teaching staff are traditionally the source of programme, course and subject objectives, unless staff members are trained to improve their competence and sophistication in objective setting, the future of curriculum development is likely to be bleak.

The traditional practice has been increasingly under attack. Students protest that programme goals are more often dictated by teaching staff interests than student needs. Many employers complain that academic and theoretical goals at the expense of practical goals seem to dominate

educational programmes. An apathetic public casts a jaundiced eye over the expensive facilities and wonders if the entire enterprise is worth a bag of beans - it all seems so remote and detached from reality and significant life issues.

Teaching staffs are inclined to justify the programmes they offer because they are the content specialists. They know where they, the programmes and the students are heading. Any programme which does not take students ahead of current knowledge and practice is deficient. Students have to be prepared for the needs of the future, not merely those of the present.

The key assumption in this stance is that teaching staff, and only staff, know what education and training are all about. Such an assumption will no longer do. Rationality demands acceptance of the fact that all educational wisdom is unlikely to reside in one group. Today's reality is that students, employers and the public must have some part in the establishment of objectives for educational programmes. Educational technocracy is no longer an acceptable mode of objective setting.

The difficulty of accepting the newer mode is obvious. The voices of the wider inputs, like those of teaching staffs, are often raucous, dogmatic and contradictory, a babble of sound without a coherent message. To encourage clarity as well as precision in objective setting the trick is to produce a system which reduces personal bias and maximises specificity.<sup>12</sup>

#### Methods of Developing Objectives

Medical educators have been among the most innovative in devising constructive methods of developing educational objectives.<sup>13,14,15</sup> Three of the most effective methods used by medical educators will serve as illustrations of what can be achieved by imaginative, competent effort. The three methods are known as the Critical Incident Technique (CIT), the Job Analysis Technique (JAT), and the Morbidity and Mortality Statistics Technique (MMST).

The Critical Incident Technique, like all others that attempt to establish learning objectives, concentrates upon the behavioural product - the elements of competence - rather than upon course content or instructional method. In its simplest form it merely asks an observer to describe a specific incident in which the person observed has been judged to have performed his professional role admirably, or very poorly, with an indication of the reason that has led to that conclusion. As incidents are accumulated, from a large number of independent observers, they begin to fall naturally into categories that ultimately encompass the full range of specific components in the competence such a professional should possess.

A sample of the end product of this method is at Table 4 on the following page:

Table 4:      Examples of Critical Performance Requirements: Orthopaedics

- I. Skill in gathering clinical information:
  - A. Eliciting case history.
    1. Obtaining adequate information from the patient.
    2. Consulting other physicians.
    3. Checking other sources.
  - B. Obtaining information by physical examination.
    1. Performing thorough general examination.
    2. Performing relevant orthopaedic checks.
- II. Effectiveness in using special diagnostic methods:
  - A. Obtaining and interpreting X-rays.
    1. Directing or ordering appropriate films.
    2. Obtaining unusual, additional, or repeated films.
    3. Rendering complete and accurate interpretation.
  - B. Obtaining additional information by other means.
    1. Obtaining biopsy specimen.
    2. Obtaining other laboratory data.
- III. Competence in developing a diagnosis:
  - A. Approaching diagnosis objectively.
    1. Double-checking stated or referral diagnosis.
    2. Persisting until definitive diagnosis is established.
    3. Avoiding prejudicial analysis.
  - B. Recognising condition.
    1. Recognising primary disorder.
    2. Recognising underlying or associated problem.
- IV. Judgement in deciding on appropriate care:
  - A. Adapting treatment to the individual case.
    1. Initiating suitable treatment.
    2. Treating with regard to special needs.
    3. Treating with regard to age and general health.
    4. Attending to contraindications.
    5. Applying adequate regimen for multiple disorders.
    6. Inventing, adopting, and applying new techniques.

The foregoing categories are some of the outcomes of using qualified orthopaedists to identify educational objectives for specialty medical education. Another complementary approach is to use the consumer, the patient. For instance, patients can be asked to describe a specific incident that led them to believe a doctor was serving them effectively as a family practitioner. The possibility of using this method in setting objectives in many post-secondary education programmes is apparent. The criticism that the method suffers from its dependence upon individual observation and judgement is redressed by a sample of respondents sufficiently large enough to minimise personal bias in the responses.

Clearly the Critical Incident Technique has been borrowed from



business management objective setting approaches. The same is true of the Job Analysis Technique, which is a more direct method than C.I.T. of identifying performance requirements towards which educational programmes should be aimed. A time and motion study approach, JAT involves a meticulous dissection of what a doctor does rather than merely what it seems desirable for him to know. This method concentrates upon what is currently done, not what a practitioner of the future should be capable of doing. This disadvantage, in the medical field at least, is counter-balanced by its use in highlighting elements of practice that do not require long years of education, and that might be handled adequately by aids, specially trained for limited or specified duties.

The Morbidity and Mortality Statistics Technique (MMST) is based on analysis and interpretation of data compiled by government authorities. While these data do not indicate the specific knowledge and skills that must be acquired by a qualified person, they do focus attention on real health problems of a region. MMST thus gives some sense of priorities in the establishment of more precise educational objectives. Overt acknowledgement of educational priorities of this type is badly needed. Left to themselves, teaching staff seem more inclined to teach about matters on the frontier of medical science, or other fields, than about common but vital things that are all around them. This approach is valuable in keeping present and future needs in perspective.

#### Programme Formulation

A set of educational objectives having been derived, assembled, and organised, the next step is their formulation into a programme, course or subject outline. Ideally each element of the final form should include three components. These are the terminal behaviour towards which the education and training is aimed, the level of competence each student must achieve, and the circumstances under which this competence must be demonstrated.

Some retreat from the ideal may be dictated by the logic of the circumstances in which the programme is to operate. The specification of the ideal may exceed what can be accomplished in practice. Commonsense will dictate what compromises are necessary. Commonsense will also restrain the urge to delineate objectives to ridiculously refined degrees of apparent precision so that the instructional event resembles a production line rather than an interactive process in which students, staff and the environment all contribute, are affected and are enriched. A tendency to a pre-occupation with small and manageable objectives that can be identified, quantified and measured and consequent neglect of large and substantial goals that cannot is scrupulously to be avoided. Rigid adherence to any orthodoxy, traditional or new, is prone to impede creative thinking. Avoiding a task simply because it is difficult, however, may also impede discovery of what might be accomplished were there a will to do so.

But as McKenzie et alia have observed:

*"The tendency to confine a course to those objectives which are*

easy to measure can be difficult to resist. If, however, one has already developed formulated objectives at the manifestational level one can avoid the danger of lowering the level of one's objectives, which is inherent in the process of trying to operationalise them, by checking one's operational objectives back against one's original list of manifestational objectives. Any course that is assessed must have operational objectives even though they are not recognized as such; and the best way to ensure that these operational objectives are the right objectives is to compare them with the manifestational objectives. The criticisms that have been directed against those who attempt to clarify objectives have been that they make educational aims trivial, but this criticism is only valid for those who try going straight to the operational level." As Wood has commented: "The complaint that teaching concentrates far too much on exercising the pupil's memory was heard long before objectives were invented. A pledge to nurture more exalted talents, which is what stating objectives implies, can hardly fail to make some improvement."<sup>16</sup>

The most useful formulation of objectives for students and teachers is one cast in a way which defines the competence to be achieved, not merely the content to be covered or the method of, instruction. The examples that follow provide concrete illustrations of the organising principles that several groups have employed in completing the task.

In programming a civil-engineering course in Birmingham, objectives describe exactly what the student should be able to do at the end of the course.<sup>17</sup>

#### Introduction to Shear Stress

1. To understand the action of shearing forces and to show how these are resisted by shear stresses within the material.
2. To define average shear stress and to consider examples of its application in practical engineering situations; e.g. riveted joints.
3. To understand the necessity for considering the shear stresses on an infinitely small element when the distribution of shear stress is non-uniform.
4. To prove the existence of complementary shear stresses on a two-dimensional element.
5. To solve problems involving complementary shear stresses in two dimensions and to extend the idea to three dimensions.
6. To define shear strain.
7. To define modulus of rigidity, and explain its meaning in engineering terms.
8. To solve general problems involving axial forces, shear forces,

shear stress, average sheer stress, shear strain and modules of rigidity with applications to engineering structures.

A traditional disciplinary framework has been used in the Department of Ophthalmology of the State University of Iowa.<sup>18</sup> More than 1600 responses from specialists in ophthalmology, general practitioners, teachers and students enabled the curriculum designers to identify some broad areas towards which the programme for medical students should be directed. These areas were visual acuity; use of the ophthalmoscope; glaucoma; strabismus; neuro-ophthalmology; trauma; and red eye.

On the basis of these general content areas the minimum acceptable performance of a graduating medical student was defined as follows:

1. when given a typically co-operative patient (ranging from a child of three years to a normal or illiterate adult, with "normal" or abnormal vision), ability to obtain a history of the visual complaint and measure and record the distance and near visual acuity;
2. when given a co-operative patient with an opacity of the cornea or lens (i.e. a cataract) or a retinal abnormality, utilising external and fudoscopic examination, ability to elicit a history pertinent to the general health and ocular status and indicate verbally the location of the findings and describe the appearance;
3. when confronted by any co-operative adult patient, ability to measure the patient's intra-ocular pressure with a Schlotz tonometer and evaluate the nervehead (making a decision of normal, glaucomatous, or non-glaucomatous but abnormal disc);
4. when given a co-operative patient with a neurological or neuro-ophthalmological problem, ability to distinguish abnormality from apparent normality in a neuro-ophthalmological examination by including examination of the retina and nervehead, plus ocular motility and pupillary reactions;
5. when confronted by a co-operative patient with an ocular injury (e.g. corneal foreign body, acid burn or injury, corneal or lid lacerations), ability to demonstrate immediate diagnostic measures; to initiate treatment of a nonpenetrating injury; to outline possible complications or therapy to be undertaken or considered; to arrive at a decision within five minutes of his own competence to continue in the same course of treatment, begin another, or refer the patient; and to demonstrate his ability to converse with the patient's family regarding the possible need for further treatment;
6. when given any individual (newborn to elderly) with unilaterally or bi-laterally red eyes, ability to obtain a contributory history if possible to examine the patient and his eyes in a manner adequate to provide a decision about diagnostic possibilities

and therapy; to include in the decision, a statement regarding etiology (i.e. injury, inflammation, glaucoma, infection, degeneration); and to take a culture if indicated by the examination;

7. if given a co-operative child or an adult with strabismus, ability to obtain a history of the general and ocular status and examine the patient in order to diagnose the type of strabismus (i.e. esotropia, exotropia, hypertropia) and obtain an estimate of the amount of deviation (small, moderate, large).

The work of Edwin Fenton illustrates how content of a subject field can be treated as data to be manipulated rather than as facts to be learnt.<sup>19</sup> Fenton's approach concentrates upon process rather than content. He uses a set of enquiry skills as the basis of a social studies curriculum:

- \* Recognising a problem from data.
- \* Formulating a hypothesis: asking analytical questions; stating a hypothesis; and remaining aware that a hypothesis is tentative.
- \* Recognising the logical implications of a hypothesis.
- \* Gathering data: deciding what data will be needed to test a hypothesis; selecting or rejecting sources on the basis of their relevance to the hypothesis.
- \* Analysing, evaluating, and interpreting data: selecting relevant data from the sources; evaluating the sources by (a) determining the frame of reference of the author of a source, (b) determining the accuracy of statements of fact; and interpreting the data.
- \* Evaluating the hypothesis in light of the data: modifying the hypothesis, if necessary by (a) rejecting a logical implication unsupported by data, (b) restating the hypothesis; stating a generalisation.

There are numerous other approaches which have been used.

An indication of the variety possible for different disciplines can be gained from an examination of Ruth Beard's Teaching and Learning in Higher Education.

When there is agreement on general and specific objectives, the curriculum developers next task is to locate objectives or areas of the programme, course or subject which could cause problems for teachers or students. For example, there may be two potentially conflicting frames of reference, a difficult proof, or a topic where there is no suitable text or article to provide help. Solutions to these problems have to be found. No answers can be supplied in advance. The skill, energy and ingenuity of the curriculum developers could be fully tested in this phase of design. This activity is akin to the "de-bugging" stage in computer programming.

Assuming the course objectives have been identified and

explicated satisfactorily, decisions on the selection of teaching methods and the allocation of resources are required. Numerous questions demand satisfactory answers. The course as planned must be compatible or reconcilable with certain logistical factors. These factors are the availability of appropriate teaching, support, technical and other staff, learning spaces, special equipment, and funds to support the course. The product of this strategic decision phase of the curriculum development process will be a set of sub-systems and a brief for the further design or development of each sub-system. This brief ideally should include a precise definition of the student input and the expected learning outcomes of each sub-system; a specification of the teaching methods to be used and the learning materials to be available or developed, the operational costs for each part of the course when implemented, and the resources available for the design and development of each sub-system.

#### Sub-system Design and Development

The outcome of this phase is the production of a course ready for implementation. It involves filling in all the essential details for the launching of a course.

The steps in this phase are illustrated diagrammatically in Figure 2. The design process, in contrast to the development process, is not a cycle but follows the dotted arrows in the diagram.

The further specification of inputs, problems and methods will probably be only an expanded restatement of the initial brief.

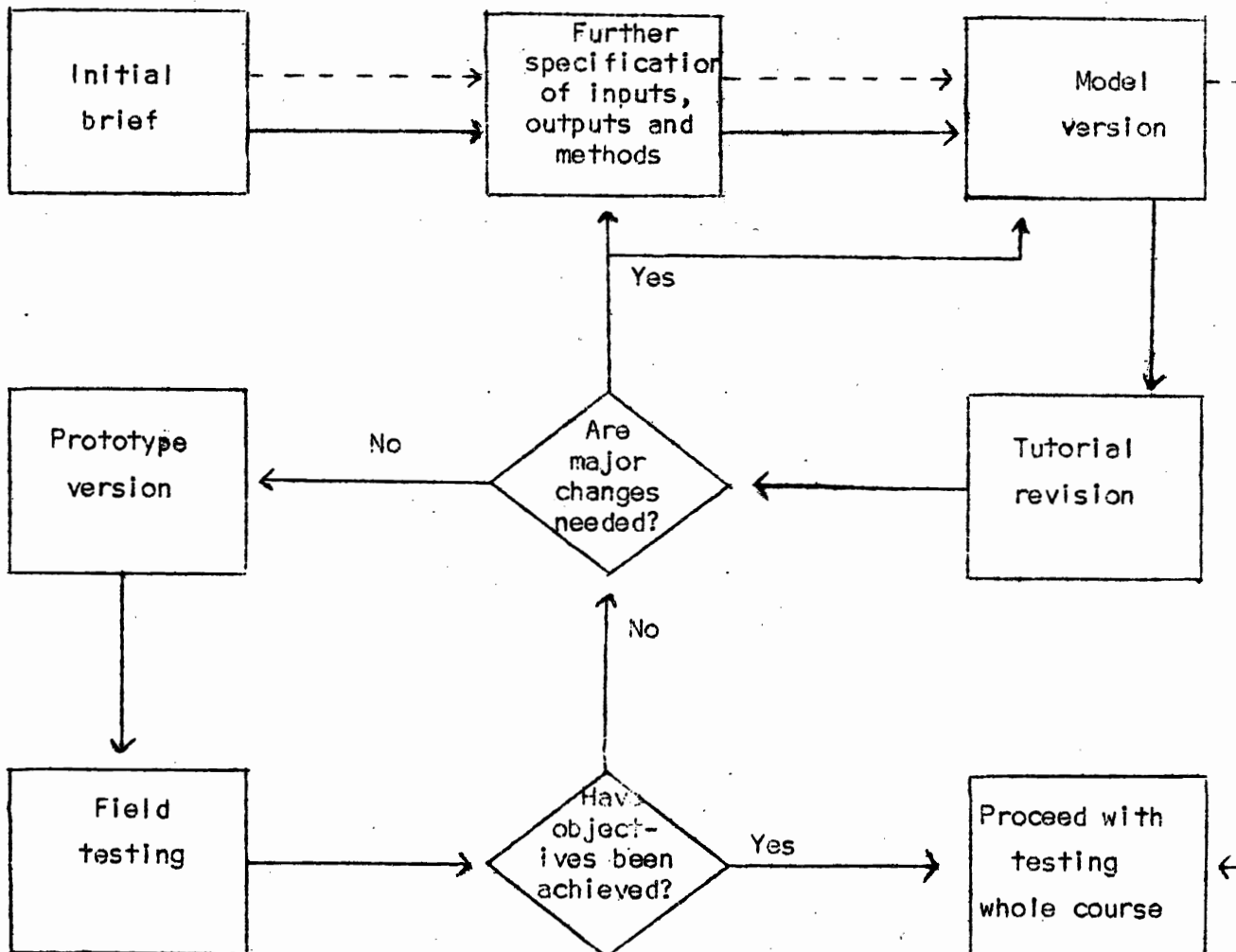


FIGURE 2: Sub-system Design and Development

Once prepared, the model version is ready for trial and revision and the emphasis is on formative evaluation. Since the purpose of this formative evaluation is to obtain information that will be useful in preparing a revised version, it is usually best to submit the model version to tutorial revision rather than field or activity testing. In the tutorial revision situation the model version is tried out on individual students or small groups of students.

#### When Should a Course be Developed?

The simple answer to this question is when a reasonable cost-benefit shows it to be profitable. This may mean that the development cost is recovered by a decrease in the operating costs of the course over a number of years (say five) while standards are maintained. It may mean that the development cost is converted into improved standards of performance and the ensuing benefit is considered to be worth the extra expenditure. Less obvious benefits such as the effect on the staff involved and their colleagues, their attitudes towards teaching and the general climate of the college should be taken into account.

Indeed, it is often desirable to carry out a feasibility study before committing resources to course development. Such a study would be concerned with formulating objectives, analysing teaching-learning problems and assessing the problem cost and benefit of applying the full course-development procedure.

#### Membership of the Course-Development Team

The bulk of the work in course development can only be done by staff who are expert in the subject-matter area concerned. Also needed in the team is a course-development expert, a very rare commodity in Australia. His task is to guide the teaching staff through the stages of the course development process and to discern their needs for special advice and guidance. A single course development expert is preferred to the American practice of involving a team of consultants. There are several reasons for advocating the single expert. It keeps the team as a reasonably small working group in which roles can be clearly defined. It keeps the subject-matter specialists dominant: it is they who teach the course. It is highly economical in the use of course development experts' time. It helps to develop a special breed of curriculum development experts who have to use the language that can be readily understood by teachers. These curriculum development experts can be trained by an inservice scheme operating under an Educational Practices unit

#### Effects on the Roles of Teachers, Students and Administrators

Curriculum development with its derivation, development, organisation, and formulation of objectives and its systematic approach to teaching-learning problems is among the most difficult of the tasks that teaching units in a post-secondary educational institution must perform.

Curriculum development as proposed here is doubly difficult because it runs against the current of conventional practices. But unless this work is done the effort invested in teaching and learning represents a long journey with neither a reliable compass nor precise map.

A not unfair comment is that formal education at all levels seems for the most part to be locked into a pattern of classes, offered in fixed periods of time, by teachers whose performance in delivering what they have learned is sometimes brilliant but is carried out in a manner that gives little attention to an individual student's interests, capacities, past performance, or current stage of development. To the extent that this is a valid judgement, the situation at the post-secondary level is particularly troubling. Teachers at this level who have teacher training are overwhelmed by those who do not. The claim that teachers are born not made is part of the conventional wisdom. The validity of the claim is becoming increasingly suspect.

In any event, more than teachers are involved in the educational process. There is no teacher who cannot improve his performance; knowledge about teaching is embarrassingly small and shaky, and constructive criticisms and rigorous evaluation are the most likely ways of improving what we are doing. Teacher training at the post-secondary level needs to become a normal activity. The training envisaged in this paper is different from what prevails today. The combination of an apprenticeship with a course-development team and attendance at a micro-teaching workshop to improve performance skills (in discussion groups and tutorials as well as in lectures) could be a useful possibility.

The whole thrust of what is advocated in curriculum development has far-reaching implications for students. There are implications in terms of their attitudes, their role as learners, their relationships to their teachers, and the part they might play in the design, operation and the evaluation of the courses and subjects they take. Students would be expected to be much more active participants in the teaching-learning process than is the case at present where, in many institutions, they are still treated as passive objects of teaching and examination procedures.

The reason for this emphasis on student participation is not in making a pro forma concession to student demands. It is rather to foster an active student involvement in the direction in which progress can be made and to guide student concern with the management of their own education into constructive channels. The rationale is to achieve a positive development. Today students tend to be an untapped resource in post-secondary education. They have a distinctive contribution to make. They could bring their own

knowledge and experience into the classroom situation and provide the feedback which enables teaching staff to revise the content of courses, the manner in which they are taught, and the means by which they are evaluated.

Curriculum developers are becoming increasingly sophisticated in their recognition of the value of including the ideas and needs of teaching staff and potential employers into programmes, courses and subjects. Student participation in the process of curriculum development is the next logical step. Post-secondary education institutions have long been criticised for their resistance to change. One frustrated administrator is supposed to have put the problem this way: *"It is easier to move a cemetery than to overhaul a curriculum."*<sup>19</sup>.

Although written nearly two decades ago, Edward Eddy's observations are still highly pertinent. He observes:

*"An organism adapts itself to its environment; we 'soak' up that which surrounds us. We found this obviously to be true of college students. We conclude that one of the most unfortunate mistakes in some colleges is the failure to realize the full potential of the contagion, the failure to come to grips with the student where he is found, and the tendency to leave the tradition, chance or student device all else but the purely academic."*<sup>20</sup>.

A college's climate of learning is a major factor in determining the quality of its total educational programme. Three fundamental generalisations need to be highlighted.

First, an education institution has its own distinctive climate or atmosphere. This climate remains remarkably constant from year to year. It attracts with intriguing consistency similar types of students and has the similar kind of impact on them. Secondly, peer-group interaction and staff-student interaction outside the classroom are important elements in the campus climate. The evidence strongly suggests that these factors have a stronger and more significant impact on student attitudes and values than the things that go on in the classroom. Even narrowly defined academic achievement is affected by the environment on the campus. Finally, many of the activities that occur outside the classroom - the course selection advisory services, the extra-curricular programme, the residential complex design and its human activities, counselling services, an occupation placement system, a campus programme of cultural events and organisations, student representative council arrangements, tone and relationships - enhance or detract from the urge to learn and increase or hinder the perceived relevance of learning. They affect, for good, or evil, the mastery of specific subject matter. <sup>21, 22, 23.</sup>

Educational institutions are not rational communities of idealistic scholars. They are complex socio-political institutions. They have their own peculiar internal interactions and stresses. Students learn from their environment, physical or as well human, from things as well as people, and from the schedules, routines, and interactions that exist in a college situation.



The higher the quality of these interactions the greater the likelihood of the quality of educational outcomes that those who initiate and support the college could wish. Curriculum development, important though it is, is but one of the elements which constitute a college environment.

#### References

1. Erant, M.R., "An instructional systems approach to course development", A.V. Communication Review, Vol.15, Spring, 1967, Washington.
2. Bloom, B.S., "Some theoretical issues relating to evaluation" in R.W. Tyler (ed.), Educational Evaluation: New Roles, New Means, University of Chicago Press, 1969.
3. Beard R.M., Healey, F.G., Holloway, P.J., Objectives In Higher Education, Society for Research in Higher Education, London, 1968.
4. MacKenzie, N., Erant, M., Jones, H.C., Teaching and Learning: An Introduction to New Methods and Resources in Higher Education, UNESCO, and the International Association of Universities, Paris, 1970, pp.102-103.
5. Bloom, B.S., et.al., Taxonomy of Educational Objectives Handbook 1: Cognitive Domain, Longmans Green, New York, 1956.
6. Cox, R.C., Unks, N.J., A Selected and Annotated Bibliography of Studies Concerning the Taxonomy of Educational Objectives: Cognitive Domain, University of Pittsburgh, 1967.
7. Eggleston, J.F., "Bloom's Cognitive domain revisited", Journal of Curriculum Studies, London, Vol.1, No.1, November, 1968.
8. Krathwohl, D.R., et.al., Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook II: Affective Domain, McKay, New York, 1964.
9. Simpson, E.J., "The Classification of Educational Objectives: Psychomotor Domain" in Final Report on Vocational and Technical Education Contract OE-5-85-104, University of Illinois College of Education, Chicago, 1966.
10. Romberg, T.A., Wilson, J.W., "The development of mathematics achievement tests for the national longitudinal study of mathematical studies", School Mathematics Study Group, Cedar Hall, Stanford, Calif., 1966.
11. Scriven, M., "The Methodology of Evaluation" in R. Stake (ed.), Perspectives of Curriculum Development, Rand McNally, Chicago, Ill., 1967.
12. Beard, R., Teaching and Learning in Higher Education, Penguin, Ringwood, Vic., 1970, Chapter 1.
13. British Medical Students Association, Report on Medical Education - Suggestions for the Future, British Medical Association, London, 1965.
14. Delsher, J.E., "Defining the family physician -the patient's view", Report to the Faculty, University of Illinois College of Medicine, Chicago, 1968.
15. Lysaught, J.P.(ed.), Instructional Systems in Medical Education: Proceedings of the Fourth Rochester Conference on Self-Instruction in Medical Education, University of Rochester, New York, 1970.
16. MacKenzie, N., et.al., op.cit., p111.

17. Croxton, P.C.L., Martin, L.H., "Away with notes (programming in higher education)", New Education, Vol.1, 1965, pp.25-7.
18. University of Iowa College of Medicine, Curriculum Content in Ophthalmology, State University of Iowa, 1970.
19. Fenton, Edwin, The New Social Studies, Holt, Rinehart & Winston, New York, 1967.
20. Coombs, P.H., "Education's Greatest Need: A Vice-President in Charge of Heresy", Phi Delta Kappan, Homewood, Illinois, March, 1960.
21. Eddy, E.D., The College Influence on Student Character, American Council on Education, Washington, D.C., 1959, p139.
22. Pace, R.C., "What kind of a college environment are students entering?" A.C.A.C. Journal, Vol.6, No.1, Winter, 1961, p6, Association of College Admission Counselors, Evanston, Ill.
23. Sanford, N. (ed.), The American College: A Psychological and Social Interpretation of the Higher Learning, Wiley, New York, 1962.
24. Heist, P., "Diversity in college student characteristics", Journal of Educational Sociology, Vol.33, February, 1960, pp279-291.

27.5.1976.

TEACHER EDUCATION AT CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION  
in 1984 ?

---

ASSUMPTION

- RESOURCES
- Adequate allocation of funds from the "Government"
  - More equitable internal allocation of resources
- ACCREDITATION
- Accreditation will be by College or Faculty instead of course.
  - Resultant greater flexibility in the college for new courses in response to local needs.
- DEMAND
- Nos. of teachers required will be at least the present level.
  - Minimal level of training will be 4 year B.Ed. degree.
  - Possession of a Masters Degree in Education will be increasingly needed for a Primary Principalship position.

PROGRAM

- QUALIFICATIONS
- Diploma in Teaching (Three year pre-service)
  - Diploma in Teaching (One year inservice Upgrading Course)
  - Bachelor of Education Degree (incorporating various majors)
  - Masters Degree (Thesis only, Course work only, and Thesis plus Course work)
- STRATEGIES
- On Campus: Full Time
  - On Campus: Part Time during academic year
  - On Campus: Summer School (six weeks over Christmas)
  - Off Campus at selected centres, such as Mackay, Biloela, Gladstone, Emerald, Bundaberg, Maryborough.

Note: Initial returns to a survey indicate interest in all aforementioned geographical and temporal options.

Dr. I. (John) Casson

27th May, 1976.

## 1. RATIONALE

- 1.1 The difficulties which Aboriginal and Islander students generally encounter in secondary schools is due to a system of education which is inflexible and therefore largely incapable of being responsive to the particular needs of minority groups. There is support<sup>1</sup> for the view that culturally different groups, such as Aboriginals and Islanders, can, in a supportive educational atmosphere, perform substantially better than they are able to manage under existing conditions.
- 1.2 It is this belief which has fostered interest in the provision of a specialised education unit designed to rectify the "marked under-achievement of Aboriginal students in academic courses in secondary schools..."<sup>2</sup> A number of recommendations follow relating to the establishment of such a unit, designed to provide a study programme for Aborigines and Islanders, titled Preliminary Education Programme.

## 2. PURPOSE OF THE PROGRAMME

- 2.1 The proposed pre-tertiary programme is designed to provide Aborigines and Torres Strait Islanders with the opportunity to increase their knowledge, competence and learning skills in order to gain entry to an existing diploma or under-graduate course at a tertiary institution, with a reasonable degree of confidence at being able to satisfactorily complete such a course of study.
- 2.2 The acceptance of an applicant into the proposed Preliminary Education Programme should not be interpreted to mean that such an applicant will automatically proceed on to undertake a tertiary level course. Applicants will need to satisfactorily complete the course offered by the Preliminary Education Programme and make application for provisional admission to a course of their choice in any tertiary institution they may choose, where applicants will be judged by the standard criteria for admission. Provisional, adult or special entry requirements could accommodate those who satisfactorily complete the Preliminary Education Programme.

---

<sup>1</sup> Students who undertake the preliminary year programme provided by the University of Papua New Guinea (after four years of secondary schooling) "perform marginally better than Senior High School students (after six years of secondary schooling) in degree studies". D.A. Stage, The Future of Preliminary Year, 1974, p.5

<sup>2</sup> Contained in a personal letter from Professor Betty Watts, University of Queensland, March 25, 1974

### 3. NEED FOR THE PROGRAMME

- 3.1 The following table shows the decline in the enrolment of all students in Queensland secondary schools as the grades increase in levels.

QUEENSLAND HIGH SCHOOL ENROLMENTS

Grades	8	9	10	11	12
All students <sup>(a)</sup>	39514	37456	33859	14175	12324
Percentage remaining	100	94.8	85.7	35.9	31.2
Aboriginal/Islander <sup>(b)</sup> students	891	733	605	102	51
Percentage remaining	100	82.3	67.9	11.5	5.7

(a) Education Office Gazette, Vol.76, No.11, Nov., 1974, enrolment for for 1974; not corrected for annual growth

(b) Australian Education Dept., Brisbane, May, 1975, scholarship holders for 1975

- 3.2 The Grade Twelve enrolment of 12324 represents 31.2 percent of the Grade Eight figure. The Aboriginal/Islander enrolments as a percentage of the Grade Eight figure is consistently lower than the state-wide figures. The 51 Grade Twelve Aboriginal/Islander students represent a low 5.7 percent of the Grade Eight enrolment, thus the attrition rate is nearly six times greater than the state-wide figure.
- 3.3 The paucity of provisions Australia-wide is highlighted in the Schools Commission Report (1975 : 131) which states in part;
- It is still possible for the National Population Inquiry Report to note in 1975 that 'in every conceivable comparison, the Aborigines and Islanders ... stand in stark contrast to general Australian society .... They probably have the highest growth rate, the highest death rate, the worst health and housing, and legal status of any identifiable section of the Australian population.' They also have the least schooling.
- 3.4 These facts highlight the need for additional supportive educational facilities for Aboriginal/Islander students before it will be possible to arrest this excessive decline in the number of students proceeding to Grade Twelve, and enable them to go on to tertiary studies.
- 3.5 The Schools Commission Report (1975 : 142) supports the notion of special 're-entry opportunities, and innovative projects associated with Aboriginal education' as a means of rectifying the present lack of participation of Aborigines and Islanders in state education. The proposed Preliminary Education Programme seeks to provide this kind of re-entry opportunity.

#### 4. PROGRAMME OBJECTIVES

##### 4.1 Introduction

It has already been inferred that culturally different groups, such as Aboriginals and Islanders, are not achieving their full potential in the existing schools system. The basic objectives of this proposed programme are to overcome the difficulties which confront Aboriginal/Islander students, namely;

- 4.1.1 To provide a supportive educational setting in which Aboriginals and Islanders may be afforded the opportunity to more fully develop their academic potential
- 4.1.2 To develop the self-concept of course members, who, due to the pressure of secondary schooling, have frequently been subject to cultural repression. An enhanced self-concept is seen as a necessary pre-requisite to the achievement of academic success.

#### 5. AVAILABILITY AND DURATION OF THE PROGRAMME

- 5.1 It is proposed to establish a one-year full-time programme consisting of two semesters, each of fourteen weeks duration.
- 5.2 The class time for students in the programme would be made up as follows;

Four subjects x six class hours per week =  
24 class hours per week  
Two 14 week semesters x 24 class hours per week =  
672 total hours for the programme

#### 6. PROGRAMME STRUCTURE

##### 6.1 First Semester Subjects

The first semester subjects are designed to remedy earlier learning deficiencies and provide foundation skills essential for learning to proceed at higher levels. Students are required to study Communication Skills and Aboriginal Studies; two others are to be selected from subjects such as those listed. This choice will, to some extent, allow individual interests to be pursued. Subject details are contained in the appendix.<sup>5</sup>

##### 6.1.1 COMMUNICATION SKILLS

##### 6.1.2 ABORIGINAL STUDIES

##### 6.1.3 CREATIVE ARTS AND CRAFT

---

<sup>5</sup> The willing assistance of Capricornia Institute staff with the compilation of subject details is hereby acknowledged.

#### 6.1.4 PRELIMINARY MATHEMATICS

#### 6.1.5 PRELIMINARY PHYSICS

#### 6.1.6 BASIC SCIENCE

### 6.2 Second Semester Subjects

No choice of subjects is initially provided for in the second semester, as those listed seem to be essential to the fulfilment of the programmes objectives. However, it is recognized that the needs of the students may vary over time and is suggested that subjects such as the following be offered;

#### 6.2.1 LITERATURE AND LANGUAGE

#### 6.2.2 DYNAMICS OF RACE RELATIONS

#### 6.2.3 INTRODUCTION TO AUSTRALIAN SOCIETY

#### 6.2.4 RESEARCH PROJECT

## 7. ASSESSMENT PROCEDURES

- 7.1 As a general policy, assessment in the subjects of the course will be continuous, rather than by terminal examination, and students will be given information on the standard of their performance so that they can monitor their own progress.
- 7.2 Assessment instruments may include projects, assignments, essays, seminar papers, oral presentations, class work of a practical kind and formal examinations.
- 7.3 The mode of assessment in each subject, including assessment instruments, weightings, attendance and performance requirements, will be determined by the lecturer concerned in consultation with the Senior Lecturer in charge of the Preliminary Education Programme.

## 8. STUDENT ENROLMENT

- 8.1 As the Capricornia Institute of Advanced Education attempts to serve the community in which it is located, it is recommended that some preference be given to applicants from Central Queensland. However, adherence to the principle of applicants being judged on their merits is to be maintained as a general rule.

- 8.2 It is recommended that the initial intake be limited to twenty students. This small enrolment will ensure largely individualized instruction, and allow emphasis to be given to those aspects of the programme which students believe are of greatest interest to them or need their attention most.
- 8.3 Enrolment numbers beyond the initial year may be varied by the dictates of experience with the initial class and the availability of funds.

#### 9. REQUIREMENTS FOR ADMISSION

It is recommended that entrance to the proposed programme be based initially on the ability of individuals to satisfy all the conditions set out below:-<sup>3</sup>

- 9.1 Satisfactory completion of Queensland Grade Ten and having attained at least 19 years of age; or satisfactory completion of the Grade Eleven high school course; or an acceptable alternative.
- 9.2 A satisfactory recommendation as to the applicant's level of interest and ability from suitable sources such as:
- \* School principal and/or school counsellor
  - \* Vocational Guidance Counsellor (e.g. Commonwealth Employment Service for those who have already left school)
  - \* An Aboriginal or Torres Strait Islander organisation, or members of these communities
  - \* Other community organisations (e.g. cultural, sporting, religious)
- 9.3 Evidence of attainment in some field of study or work, OR a satisfactory level of attainment in a battery of psychological tests (e.g. The Pacific Series of Verbal Reasoning, Word Knowledge, Number, Non-Verbal tests have been used successfully in Papua New Guinea and may be appropriate).

#### 10. LOCATION AND STAFFING OF THE PROGRAMME

- 10.1 The special nature of the programme being offered together with its separate source of funds suggests that it should be an entirely autonomous unit, under the leadership of a Senior Lecturer. A nominal attachment to the School of Education may provide for some integration within the Institute.

---

<sup>3</sup> Entry requirements may vary from year to year depending on the success achieved by students in the course, and afterwards.



- 10.2 It is recommended that the competencies of existing staff, where appropriate and when available, be utilized in order to provide an integrative emphasis to the programme.
- 10.3 It is recommended that a staff-student ratio of one to five be maintained in order to provide learning conditions under which there is a substantial likelihood of the objectives of the programme being achieved.
- 10.4 It is also recommended that competent, qualified Aboriginal staff (full-time or part-time) be employed where available; special consideration should also be given to the inclusion of a tribal Aboriginal on the staff.
- 10.5 Four full-time staff members or their equivalent, would need to have expertise in the following areas:-
- Social Sciences (Political Science, History, Sociology, Anthropology)
  - Communication Skills (Creative Writing, Remedial Reading, etc.)
  - Counselling and able to teach some Psychology<sup>4</sup>
- In addition the full-time services of a shorthand-typist would be required.
- 10.6 The success of the proposed programme will be largely dependent on the staff selected. Lecturing staff unsympathetic to the course objectives, or unskilled in working in another culture, would jeopardize this programme. Due to the critical nature of this aspect of the venture, it is *strongly recommended* that persons with recognized expertise in staff selection for cross-cultural programmes be employed in the initial evaluation of applicants.
- 10.7 The Australian Government Department of Aboriginal Affairs will be asked to nominate Aboriginal and Islander representatives to form a staff selection panel.
- 10.8 Listed below are additional persons able to advise on staff selection and would probably be available when required:-

Mrs. Lorna Lippmann, Centre for Research into Aboriginal Affairs, Monash University, Melbourne.

Mr. R.E. Hicks, Department of Management, Queensland Institute of Technology.

Professor Charles Rowley, Director, Australian Academy of Social Science, Canberra.

Professor Betty Watts, Educational Research Centre, University of Queensland.

---

<sup>4</sup> The Aboriginal Community College at Torrens C.A.E. has found that the skills of an Aboriginal Counsellor have substantially increased the participation and involvement of students in the course.

## CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

Submission of: SCHOOL OF ENGINEERING  
for PLANNING WORKSHOP AT GLADSTONE  
held 28th to 30th May

This proposal

- . outlines the aims of the School of Engineering,
- . attempts to show one probable outcome of the realisation of these aims, and
- . asserts that the technologists at CIAE have failed in one important aspect of technological education.

Other outcomes are, of course, quite possible. Industrial, social, economic and other factors will change and as these changes become known the outcomes must be affected. Planning is not a static activity it is a dynamic one. Future plans agreed today must be adopted to meet the developments and constraints of tomorrow.

With this in mind the aims of the School of Engineering are presented first. This is followed by an attempt to predict the realisation of these aims. Finally an assertion is made regarding one relative failure of the Technologies at the CIAE.

### The Aims of the School of Engineering

The fundamental aim of the School of Engineering is to serve the community of Central Queensland in the fields of Civil, Electrical and Mechanical Engineering over as broad a range of Engineering topics as possible. The knowledge and skills of both professional and support staff will be used in formal and informal education programmes and also to consult, advise, research, test and calibrate as required by industry, commerce, education and others.

More specifically, formal education programs will span the range from two year full time Associate Diploma courses through four year Bachelor Degree courses to continuing education courses such as seminars, summer and winter schools, Post Graduate Diplomas and Masters Degrees where need or demand is recognised. The provision of informal education may be by public lectures, papers presented to conferences or professional bodies, articles in newspapers and journals or invited lectures.

Consulting, research, testing and calibration are also desirable and necessary ways in which the School of Engineering can serve the community of Central Queensland.

The aims of the formal education programs, the Associate Diploma and the Bachelor Degree are further expanded.

The Associate Diploma program aims to produce a para-professional who would,

- . support and relieve the chartered engineer of routine and standardised activities in the fields of design, production, construction, development, erection, commissioning and maintenance of engineering plant, equipment and structures,
- . possess knowledge and skills in the engineering discipline appropriate to the above activities,
- . have completed a broadly based training program fitting him to adapt to later stages of career development,
- . be aware of his responsibilities to community, and the profession of Engineering,

- . embrace the notion that continuing education is an essential part of any successful career,
- . be proficient in oral and written communication.

The Bachelor Degree program aims to produce a graduate who would,

- . be accepted by the Institute of Engineers, Australia for graduate membership,
- . possess at least the knowledge and skills appropriate at pass degree level in either Civil, Electrical or Mechanical Engineering,
- . be aware of his responsibilities to the community, the profession and the environment,
- . be proficient in oral and written communication,
- . embrace the notion that continuing education is an essential part of any successful career,
- . possess sufficient depth of Engineering Science knowledge to allow adaptation to new fields,
- . be aware of current social issues and have defensible arguments regarding each of these.

Finally the School of Engineering seeks to develop expertise in a small number of fields and become accepted, at least within Queensland, as the centre of excellence for those topics.

#### Realisation of Aims

The Engineering School has every confidence in the future of the UG1 and UG3 and PG2 courses in Engineering.

UG1 (Bachelor of Engineering) total enrolments in Engineering in the last four years are -

1973	-	109
1974	-	143
1975	=	161
1976	-	174

showing a 60% increase in the three years since degree courses have been approved. This is in marked distinction to the world wide trend against the sciences and technologies, and indicates an acceptance by the community of Central and North Queensland of the standards being set, and respect for the graduate produced.

It is anticipated that as Engineering graduates are employed in more diverse roles and locations acceptance of the CIAE as a reputable tertiary institute will be further recognised.

The breakdown of 1976 enrolments is:

	<u>Civil</u>	<u>Electrical</u>	<u>Mechanical</u>	<u>Total</u>
1st Year	16	29	11	56
2nd Year	16	20	22	58
3rd Year	15	9	11	35
4th Year	<u>7</u>	<u>5</u>	<u>13</u>	<u>25</u>
<u>Totals</u>	<u>54</u>	<u>63</u>	<u>57</u>	<u>174</u>

This shows that all three courses are viable but that year to year preferences between the three vary. It also shows that third and fourth year class sizes are going to increase in the next few years, thus reducing the cost/student in these years.

We anticipate the 1984 enrolments to be of the following order:

	<u>Civil</u>	<u>Electrical</u>	<u>Mechanical</u>	<u>Total</u>
1st Year	25	25	25	75
2nd Year	20	20	20	60
3rd Year	18	18	18	54
4th Year	18	18	18	54
	—	—	—	—
Total	81	81	81	243

This assumes a dropout rate of 20% between 1st and 2nd year and 10% between 2nd year and 3rd year.

It also assumes no major engineering development in Central Queensland. It is expected that if major developments in engineering and mining do occur then these forecasts would be far too conservative.

Dr G L Baker, Deputy Director (Technical) Department of Commercial and Industrial Development, Brisbane, in his paper at the Gladstone Power Station Project Symposium in November, 1974 held at the CIAE, said, with respect to Central Queensland

"The availability of the region's resources coupled with the existence of certain key industries and the potential to supply relatively cheap energy provide the base for the establishment of a system of large scale export orientated industries."

He listed the following industries which might reasonably be established :  
Caustic Soda, Chlorine, Salt, Alumina, Aluminium smelting, Electric Steel, Nickel, Abrasives, Fused Alumina, Phosphorus, Phosphoric Acid, Titanium Dioxide, Titanium Metal, Magnesium, Chlorine, Sulphuric Acid, Mineral Sands, Additional Coal Exports. Large nuclear and steel plants have often been studied for siting in Central Queensland.

The realisation of this potential is impossible to predict but it seems reasonable to assume that at least a small number of these will be established in the next five to ten years. If this is the case then Engineering and Science at the CIAE will be called upon to educate a significantly increased number of diplomats and graduates.

Once established and known it is believed that the likely pattern of UG3 enrolment to be (say in 1984) - again assuming no major mining and engineering developments in Central Queensland:-

	<u>Civil</u>	<u>Electrical</u>	<u>Mechanical</u>	<u>Total</u>
1st Year	33	33	33	99
2nd Year	30	30	30	90
	—	—	—	—
Total	63	63	63	189

The School of Engineering supports the notion of continuing education and has taken a number of steps in this direction. The largest is the identification of the area of Electric Power Systems Analysis and Control and this has now been approved as a Masters Degree program. Student numbers are not expected to be large but since the program is the only one of its kind in Queensland and since it is the only Masters Program approved for the CIAE, the effort required to offer the course should be made.

Shorter courses of from 1 day to 1 week will continue to be offered from time to time. Past courses have included the Gladstone Power Station Project Symposium, A Systems Approach to Industrial Problems, Electric Power Systems Analysis Course, Symposium on the Teaching of Structural Engineering, Electrical Technology and Water Engineering. The School of Engineering will continue to seek to host suitable Technical conferences and symposia.

Finally the School is becoming accepted, albeit in probably only a small way, as a centre of excellence in several fields. Microprocessor Applications (several research grants have been won), Cyclone Resistant Dwellings, Plywood Design and Characterisation, Laminated Timber Structures and Solar Energy could be included. (The work with the timber and plywood industries has received considerable recognition and support from these industries). Lack of financial support from the CIAE and lack of time has severely limited all such efforts in this direction.

#### One Important Technological Educational Failure

It is asserted that the technologists at the CIAE have failed in their efforts to bring modern technological education to high school teachers in Central Queensland and students enrolled in CIAE courses in Education, Arts and Business.

In today's world, technology is vital for the very existence of society as we know it. To deny the importance of technology is thus not only naive, but serious insofar as the future is concerned, if we wish to control our own destiny as a nation. Consider, for example, the world energy situation. Surely no-one would argue with the proposition that all persons completing a tertiary education should know of the available sources of energy, the growth of demand for energy, the trends in costs, the waste products etc. Ours is an energy dependant society, so much so that the world shortage is causing the text books on international trade and economics to be rewritten.

FRANK SCHRODER  
26.5.76

CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

DEPARTMENT OF CIVIL ENGINEERING

Statement of Objectives, Strategies  
& Aspirations for the Department

Prepared for the Planning Workshop May, 1976

Further to the response from the School of Engineering, the Civil Engineering Department have some specific aims and objectives which either complement the aims of the School, or are additional to them. They may be broadly categorized as follows:

1. Development of courses
2. Consulting and Research work
3. Community service

Development of Courses:

In general it is believed that in time, the Department should offer the following courses:

Master of Engineering	
Bachelor of Engineering	- existing course
Associate Diploma	- planned for 1977
Extension courses/symposiums	- currently offered

(these are not listed in order of priority).

The bachelor degree course is satisfying an obvious need in the community and it is clear that student numbers in this course will continue to grow. The cost/graduate is obviously somewhat greater than for the large metropolitan Colleges and Universities. However, the cost/graduate for Australian Universities is higher than their counterparts in the U.S.A. so, if cost is the only criterion, all professional Engineers should be trained in America.

Extension courses and symposiums have been operated by the Department for many years. The list includes:

- Structural Analysis & Design course for practicing engineers (equiv. 5 days) - 1972
- Water Engineering Course (3 days) - 1973
- Road Safety Seminar (2 days) - 1974
- A Systems Approach to Industrial Problems (5 days) - 1974
- National Symposium on the Teaching of Structural Analysis & Design (3 days) - 1975
- Seminar - Prevention of Wind Damage in Domestic and other Low Rise Buildings (CSIRO) - 1 day - 1976

Such courses serve the local community and also promote contact with other professional engineers (including academics). It is aimed to have at least one course each year.

The Associate Diploma courses which are planned for introduction in 1977 are particularly important for several reasons:

1. Many organizations and industries in Queensland are in need of a "practical" type of person who can perform routine Engineering tasks, but who is a lot less expensive to hire than a professional engineer. The mining industry is a particular case in point.
2. Many young people wish to pursue a career in engineering but have not developed the necessary mathematical skills at High School to enter the degree course.
3. Students who fail the degree course can still take up a career in engineering.

A Master of Engineering course is currently under discussion within the Department, and two possibilities exist:

1. An 'informal' course, industrially oriented, based mainly on a research programme. Such a course would probably attract only a limited number of students but could be operated at very little cost.
2. A formal (i.e. lecture oriented) course in a specialist area. One proposal being investigated is in the field of Timber Engineering where there is considerable expertise within the School of Engineering. There is no other such course in Australia or New Zealand.

#### Consulting & Research:

Every academic in the Department has spent a substantial proportion of his professional life in industry. Experience other than academic life has been a criteria for appointment of staff - and is expected to remain so.

It is essential also that staff establish links with industry so that they may keep abreast of current practices and involve students in practical situations. The most effective way of maintaining a liaison with industry is by consulting or applied research which places staff directly in an industrial work situation.

Furthermore the existence of a highly qualified group of people in the community, who are available for specialist consulting or research, is of enormous benefit to that community.

Whilst a considerable amount of consulting has been, and is being done, there is a need for more of this kind of activity and staff must be given every encouragement to become involved. However with the current heavy teaching loads, additional consulting or research is often very difficult.

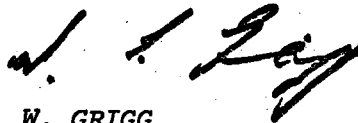
It is suggested that provision should be made for a reduction in teaching loads for staff who take on significant consulting/research activity.

Community Service:

It is becoming increasingly evident that engineers have a responsibility to the public to:

1. Make available information, or expertise, if it is of general concern or interest.
2. Make known the consequences of engineering effort.

To this end it is the aim of the Department to promote more 'community service' type programmes. In the past there have been some articles in newspapers, emanating from the Department, particularly in the field of road safety. This year there will be a series of public lectures aimed at advising the public on cyclone protection for houses. There are many other areas where courses/T.V. appearances/newspaper articles can be arranged to make the public more aware of the many engineering activities which are part of everyday life.



W. GRIGG  
Acting Head,  
Civil Engineering Department  
26th May, 1976



## THE INSTITUTE IN 1984

### OBJECTIVES, STRATEGIES AND ASPIRATIONS OF THE DEPARTMENT OF BIOLOGY

The Department of Biology offers at present a Bachelor of Applied Science (Biology) at the UG1 level and an A.D.B.L.T. at the UG3 level. In 1976 the Department mounted its first subject in the field of further education and it is developing teaching facilities which are planned to be opened to the public in the foreseeable future. We are also actively involved in research programmes of vital interest to Central Queensland. In short our Department is a rapidly evolving centre for the dissemination of biological knowledge.

#### 1. OBJECTIVES

There are three main bodies of individuals that the Department serves: its students both actual and potential, the Central Queensland community as a whole and Departmental staff. The objectives of the Department vary according to the specific role in question.

##### Students

Firstly, Departmental objectives as related to the student body fall into four major categories, namely those associated with a.B.App.Sc.(Biology), b. A.D.B.L.T., c. servicing, and d. development and introduction of new programmes and/or modification of existing ones. The objectives of our UG1 and UG3 courses appear in Appendix 1. In our servicing courses the Department strives to:

1. Contribute significantly to the professional development of all students.
2. Provide students outside the field of biological sciences with an awareness of the environment to enable them to become responsible citizens.
3. Demonstrate that there are alternative modes of problem-solving, and to
4. Serve as an example of excellence, one to be both admired and emulated.

The final category of objectives with respect to students deals with new programmes and/or modification of existing ones. In this area the Department attempts in an on-going fashion to meet the current and future needs of the society in which we live and work. With respect to Biological Sciences, then it is our responsibility to act as a watchdog for the community as a whole not only in tertiary but also in primary and secondary education whenever we can contribute to the development of a student.

##### Community

The Department's objectives with respect to the community have been modified significantly in the immediate past. Our new programme has been developed to:

1. Provide further education in Biological Sciences for any citizen in our region
2. Enrich the cultural life of our community and to
3. Supply the technical expertise required to solve community, environmental and industrial problems.

##### Staff

The Department has definite responsibilities to the staff which it employs. The objectives laid down attempt to meet these responsibilities. They are to:

1. Provide a suitable environment as well as encouragement to enable staff officers to develop and advance in their professional careers, and to
2. Compensate staff members for the almost total isolation they experience from colleagues elsewhere in their particular fields of expertise.

## 2. STRATEGIES

### a. Courses Leading to a Tertiary Award in Biological Sciences

The Department has made and continues to make its existing courses available to as many students as practicable. Our entire academic programme is available to internal, part-time and/or external students. In yet further developments of this policy the Department is considering two additional methods of increasing the availability of our courses to students. In the first instance we are investigating the feasibility of admitting students half way through a conventional academic year. Such students would enrol on a full-time basis internally but would carry only half the normal number of subjects and would be able to complete two subjects, say Biology and Chemistry, in their entirety by the end of the normal academic year. These students would then enrol normally in subsequent years. If a student were to progress through his programme in the minimum period of time then the last half-year could be completed on an external basis while being employed. The second consideration is relevant not only to the former proposal but also to our existing internal and external programmes. It is believed that the viability of our Department would also be improved if we were to mount summer schools. All students would thus be afforded the opportunity of progressing more rapidly toward their tertiary award. This opportunity could be particularly attractive both to external students and those who enter the course half way through a normal academic year.

### b. Servicing Courses

There are four main areas in which the Biology Department can service tertiary programmes in other Departments, that is Arts, Business, Education and Engineering. Within these programmes it is only within the Department of Arts that an entire, coherent and relevant major in Biology is currently offered. The first unit of this course is now available to all non-science students on our campus. Second and third year units are also planned, in particular for Engineering students who would build on a course if offered at first-year level in Chemistry which would enable them to appreciate the constituents of effluents that affect biological systems. This development is particularly important if we are to produce the correct type of managers and engineers for tomorrow: professionals who will understand their responsibility to the community as a whole and the relevance that their decisions will have on future generations.

It is however in the School of Education that the Biology Department believes it ought to be making the greatest contribution. All primary school teachers must teach science and yet there is a dramatic trend away from science subjects taken at C.I.A.E. by Education students. In 1974 the Biology Department taught an average of fifty-seven students throughout the entire year. Present enrolment figures are down to < 15.8% of that figure! Table 1 shows what science subjects were taken by these students to Board level of Secondary School Studies Certificate.

Table 1: Science Subjects Taken to Board Level and Level of Achievement Attained by Education Students Enrolled at C.I.A.E. Commencing in 1976.

Subjects	Attempting Subject (% of total C.I.A.E. Education Enrolment)	Students With 16 or more points (% of total C.I.A.E. Education Enrolment)
Biology	47.8%	34.4%
Chemistry	23.5%	9.4%
Physics	15.1%	5.8%

Clearly to persist with our present course offerings is to perpetuate bad science teaching in our primary schools for an entire generation. Urgent action is required to rectify this gross anomaly.

c. New Programmes

United Nations figures suggest that there are some  $2 \times 10^9$  people subsisting on deficient diets today. Actual world population growth is approaching an exponential curve and within twenty-five years the world will be feeding approximately 50% more mouths. Even relatively conservative figures indicate that man will need to produce and distribute at least 40% more food than he does at the moment. Modern agriculture is a highly sophisticated science in developed nations today. Therefore in order to supply these massive new supplies of food man will be forced to harness under-utilized resources. Aquaculture, the farming of waterbodies, is the truly undeveloped science of today. It is therefore in the field of aquaculture that we propose to prepare submissions for a post-graduate diploma.

d. Community Oriented Programmes

C.I.A.E. is located in a relatively under-educated community. No longer should we treat education strictly in terms of vocational training. We now take the broader view that education can provide a more interesting and fruitful life for all members of the community. At the beginning of 1976 the Biology Department offered its first course in further education. It is hoped to mount a course in Marine Biology during the second semester of the current academic year. Furthermore we plan to offer environmentally-oriented non-professional courses as further education units on an external basis as soon as it becomes practicable to do so.

The Department has been extremely fortunate in obtaining at the beginning of this year a thirty year lease over a 2ha site at Byfield from the Queensland Department of Forestry. We are currently attempting to attract funds to develop a field station on the site. Terrestrial, fresh water, estuarine and marine habitats are all within a short distance of the station. It is located in the centre of the last existing population of Byfield ferns. In addition to tertiary students it is planned to open the station to primary and secondary students as well as to interested members of the public. In the United Kingdom today demand for such facilities from the public exceeds the capacity of such stations by approximately 300%.

The Department is also in the process of establishing a Museum of Natural Science. Once again the community in Central Queensland suffers both educationally and culturally from the lack of such basic facilities. The small museum will be opened to the general public as soon as practicable.

A further project in our integrated community-oriented programme is the creation of a 40ha native flora and fauna sanctuary on our campus. Like the previous facilities we plan to utilize this asset not only to further tertiary education in Central Queensland but also to open it to the public to improve its appreciation of the Australian environment.

The final, but by no means least important, step towards the integration of Departmental activities and community needs is in the field of research. During the last two years the Biology Department has been able to attract more than \$43,000 to study problems of importance both to industry and the community in Central Queensland. The projects include studies of the endangered ghost bat, methods to control flies breeding on industrial effluent near Sarina, the influence of molluscs on the distribution and abundance of water hyacinth and the interaction of native fauna, vehicles and highways. The community is prepared to fund research at C.I.A.E. and we plan to become more and more involved in this important role we fill in society.

e. Responsibilities to Staff

The Department actively encourages staff members to pursue courses leading to higher degrees and during the past three years two study leave programmes from the Department have been centred around the acquisition of Masters degrees.

In a growing centre such as Central Queensland there is no difficulty in providing almost endless challenges for academics as evidenced by much of the preceding discussion. The two basic problems are funding and time. The former is clearly the responsibility of the Head of the Department. I believe sufficient funds can be attracted to proceed at a modest although not insignificant pace in relevant areas of endeavour. The latter, that of time, is more difficult to overcome. I plan to implement staggered teaching loads to enable staff members to conduct research in concentrated bursts. I believe this approach will improve staff morale and be reflected in the quality of their teaching programmes.

Finally, due to our academic isolation it is imperative that we persist with an active staff travel programme. Funds need to be made available to enable academics to travel to conferences, utilize major library collections, visit industrial and academic laboratories and join in discussions with other professional biologists.

### 3. ASPIRATIONS OF THE DEPARTMENT OF BIOLOGY

The Department sees its future not only in terms of development of existing course structures but also in the creation of a completely new course in a more discrete section of *Applied Biology*. Aquaculture is one such discipline. It is not possible to undertake a formal course in Aquaculture in any tertiary institution, either University or College of Advanced Education in Australia today. Both the University of Queensland and James Cook University have strong interests in the field of Marine Science. These Universities have however adopted conventional teaching programmes in this discipline. Irrespective of student demand expressed in school liaison visits and letters of enquiry, to create a third such centre in Queensland would be irresponsible in the extreme. However, the formation of a course in Aquaculture at C.I.A.E. would not add to the oversupply of graduate Marine Biologists in Australia.

Why Aquaculture? The proposed course fits into current Federal Government policy as evidenced by a media release on 14th May, 1976 by the Minister for Science, Senator J.J. Webster who stated therein, "It is extremely important for Australia to invest in marine research due to the lack of knowledge about our coastal waters, and our increasing dependence on the oceans as a source of food". The latter phrase is particularly relevant in the present context.

Man has farmed terrestrial habitats for thousands of years and aquaculture is practised as a science to a limited extent in most developed nations today. Although aquaculture had its origins in China where carp were farmed as early as 500 B.C., the discipline is still in its infancy. In aquatic environments man still remains primarily a hunter or collector, that is to say modern man is effectively a predator on unmanaged natural populations. Schools of aquaculture are now well established in a number of Universities in the Northern Hemisphere. In these programmes emphasis has naturally enough been placed on the culture of local species. Only some of this information is relevant to the Australian scene. We would do well to integrate concepts developed in the U.S.A. and the U.K. with those in South Africa, Japan and our less well-developed S.E. Asian neighbours in order to establish our programme.

#### Format

Clearly no additional undergraduate courses are warranted in Biological Sciences at this juncture. It is thought that the Institute would offer initially a one-year post-graduate diploma by course work. As facilities expand and actual demand for further offerings to be made in the field is demonstrated a Masters programme by research should be commenced. This latter development would foster research and development programmes on endemic species under local conditions, an event that could only benefit Australia in the long term.

#### Current Australian Interest

A number of major Companies in Australia have shown interest in aquaculture

ventures. Three such firms are Amatil, C.S.R. and I.C.I. A few small companies are actually operating at present. These include trout farms in New South Wales, Tasmania and Victoria as well as a company which has been set up to farm fresh water prawns in the Northern Territory. The New South Wales State Fisheries Department is supporting an active programme aimed at developing techniques to farm marine prawns. Indeed governmental and industrial interest in aquaculture is growing constantly. Due to the lack of a formal tertiary programme in Australian aquaculture, significant investment patterns in the industry are currently confined to major corporations and entrepreneurs prepared to put funds into high risk ventures.

#### Why Aquaculture at C.I.A.E?

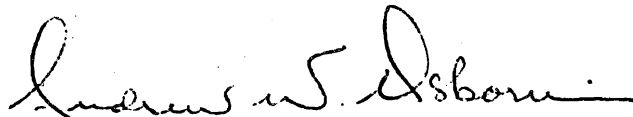
One of the most important requirements for a successful venture in aquaculture is the availability of a large supply of warm unpolluted water. In North America and the United Kingdom attempts are made to overcome problems associated with low temperatures in aquaculture projects by using waste water from power stations. In Australia pollution is a significant problem in southern industrialized centres. Added to this is the problem of low winter temperatures which would limit growth rate and/or the number of harvests in any given period of time. These difficulties are minimized in the Temperate Zone. Thus Queensland, Western Australia and the Northern Territory all have significant areas of suitable bodies of water. Of these only Queensland has the necessary population centres and tertiary Institutions essential to mount the programme. Suitable marine and estuarine habitats including salt pans occur along our extensive coast line. In addition we have excellent access to significant bodies of suitable freshwater habitats for example the Fitzroy River as well as the Callide and Fairbairn Dams are in our immediate vicinity.

#### a. Departmental Involvement

A course in Aquaculture would tie the Department together into a neat applied teaching unit. This would be so both for staff and students. We have staff members in post who display a major interest in the following fields: Aquatic Botany with particular reference to phytoplankton, Invertebrate Zoology with particular reference to Crustacea and Insecta, Parasitology, Physiology and finally Vertebrate Zoology. Irrespective of their undergraduate background, students would have similar interests.

#### b. Inter-Departmental Involvement

Capricornia Institute is indeed fortunate to have already on campus other disciplines which are required to assist in mounting a well-rounded programme in aquaculture. The Chemistry and Physics Departments could offer a subject in water quality control, theory and instrumentation. The School of Engineering could supply a subject on water stratification as well as pond design, both conventional and potential e.g. the use of sound or electric barriers, air bubble curtains etc. An important and integral segment of the course would be offered by the Department of Business. The subjects envisaged would deal with the economics of aquaculture ventures. Such expertise would enable diplomats to evaluate the economics of proposed ventures in aquaculture. Few biologists possess the knowledge necessary to complete the necessary computations in order to produce an accurate ROI let alone a DCF!



ANDREW W. OSBORN  
Head, Department of Biology.  
26th May, 1976.

## APPENDIX 1

### A. Objectives of the Degree of Bachelor of Applied Science (Biology).

1. To provide a course leading to a pass degree in Applied Science in which the principal subject is studied for three years;
2. To produce a biologist with a broadly-based knowledge of biological science together with practical skills to enable him to attain professional status in teaching or in industry.

To maintain a teaching-learning climate which encourages students to appreciate

- (a) their individual intellectual capabilities and possibilities for post-graduate and future career development;
- (b) the value of an open-minded and flexible approach in meeting diverse and rapidly-changing experiences;
- (c) the satisfaction of carrying out an investigation both as an individual and as a member of a team;
- (d) the significance of analysing controversial issues objectively, particularly those of biological import, in order to understand and appraise the pertinent arguments;
- (e) the social responsibilities of the scientist with particular reference to the impact of biological discoveries on moral philosophy and the need for understanding the emergent problems.

### B. Objectives of the Associate Diploma in Biological Laboratory Techniques.

1. To provide a course leading to a tertiary award in which a relatively greater emphasis on the development of skills associated with biological techniques is placed as compared with a category U.G.2 Diploma Course.
2. To produce a laboratory technician with a general appreciation of biological science and a thorough grasp of associated general techniques together with competence in the requisite skills to ensure a firm foundation for developing particular requirements of a variety of job situations.

## THE CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

### CHEMISTRY DEPARTMENT

The Chemistry Department has produced twenty-six degree graduates. Of these six have entered the teaching profession, one has started his own non-chemical business and the remainder have found industrial employment. There has been considerable mobility in seeking advancement. Part of this success, in an area where positions are usually eagerly sought is related to the graduates willingness to move to remote areas, the nickel and iron areas of Western Australia and the coal and uranium mining areas of Queensland. Several graduates are employed in laboratories in Melbourne and Brisbane. The number of students entering the course is depressingly low as is being experienced by Chemistry Departments throughout the country. This international experience is not restricted to Chemistry. The general movement at the secondary level is away from narrowly based science specialist studies which may necessitate a rethinking of existing specialist courses to degree level based upon a presumed knowledge of senior science subjects and which offer a limited opportunity for non-science studies. This implies either a broadening of existing courses or even a very major restructuring to allow a more integrated experience of a range of science subjects and with a minimum of presumed specialist knowledge. At the same time there needs to be a sensitive response to the needs of non-science students with either no science backgrounds or with bad experiences of science teaching. It is also open to conjecture that if the number of science majors at senior continues to decline then a college role, in the American tradition, may emerge.

#### A Proposed New Course - Associate Diploma in Industrial Science (Applied Chemistry).

It has become increasingly obvious in recent years that with the phasing out of Queensland Department of Technical Education Certificate courses in Chemistry and with the elevation of Queensland Colleges of Advanced Education science courses to degree status, an educational vacuum exists in the area of sub-degree courses with major interest in chemistry. It is known that many laboratories have non-qualified or partially qualified technicians who want a useful qualification but do not wish to proceed to the U.G.I. degree level.

The lesser number of students taking full science majors in the schools should not be interpreted as a full opting out for Science. In part at least it reflects broader interests as encouraged by current educational philosophies. School liaison work continually shows that students are interested in "laboratory employment" but do not want degree courses to prepare them for such technical positions. Institutes and Universities have responded to the situation of fewer students taking full science majors at the senior by altering entrance requirements. If this practice of changing entrance requirements results in the lowering of entrance requirements then very real implications arise with respect to the standards of the course or failure rates. One can be optimistic about the student demand for a UG3 course - the experience in the Associate Diploma in Biological and Laboratory Techniques appears to confirm this claim. Employer demand is difficult to assess. The results to date of a survey of prospective employers would suggest that modest numbers of UG3 diplomats are required. However, almost every response from employers commented that so much depends upon the economy. Some of the wastage of students who fail the UG1 course may be avoided or salvaged if a UG3 level course was available.

The demand for laboratory technicians does in many ways reflect the demands of society. If society, through low-statutes, court opinions and government regulations demands a greater knowledge of the products they use, nicotine and tar in tobacco, monomer content of plastic containers which may contaminate the content or that foodstuffs be labelled with a list of additives (preservatives, yes etc.) and their levels, as well as with quantitative levels of nutritional substances present then a new demand will emerge for laboratory techniques.

In Australia this movement for more information about our diet is gathering momentum. The greater complexity and diversity of pesticides and fungicides used in producing our food and ever increasing range of additives leads to such situations as was recently reported concerning a contaminated pet food and the suggested relationship of some chemicals with hyper-activity.

We can expect tighter Food and Drug legislation in the near future. This will create an increased need for analytical expertise in the food industry. In the recent Australian Academy of Science report Diet and Coronary Heart Disease, is the following statement.

"There is an urgent need for the modernization of regulations on labelling and definition of foods. Australia is notably deficient in regulations relating to the full and accurate labelling of the contents of foods. A new approach to labelling is needed to allow the consumer easily to identify nutrient content (particularly the amount and type of fat and cholesterol) in all foods, including commercially prepared mixed dishes, and to encourage the manufacturer of nutritious products low in total fats, saturated fats and cholesterol.

Rules and regulations of the Australian and State Governments on food stuff definition, adulteration, etc., should be modernized and made uniform to permit and encourage the production, advertising and sale of products low in total and saturated fats and cholesterol (e.g. processed meats), made with moderate amounts of unsaturated oils instead of large amounts of saturated fats".

In a recent A.B.C. "Guest of Honour" program, a leading Australian food chemist, Oscar Mendelsohn, emphasized the need of uniform Food and Drug legislation throughout the nation and also for the public to be informed of the additives they consume.

'It is probably a retrograde step to expect food to last beyond its normal life unless it is refrigerated or canned. As the late Professor W.A. Osborne said "Preservatives are effective only because they are protoplasmic poisons". But whatever may be one's view on this thorny subject, it is at least certain that everybody who buys food containing a chemical preservative is entitled to be told the nature and quantity of the agent used. A few years ago manufacturers were compelled to show this information on the label. Trade pressure secured a most undesirable change. Now it is only necessary to show the bald two words "Preservative Added". If your physician considers you should not be taking daily doses of salicylates or benzoates or sulphides or formalin you will get no help from the label'.

It is against this background of growing concern that part of our UG3 course is designed. That the mining industry is of more local concern is acknowledged; however the fundamentals of analytical chemistry are not unique to any one area of employment. The course proposed here offers graduates the opportunity to become proficient in Analytical Chemistry and in Metallurgical Chemistry or Food Analysis. The demand for the Food Analysis components of the course may in fact have the greatest demand from external students. It might well be that some components or options in courses would only be available by external studies. It has been common in Chemistry courses to require that part of it be carried out on a part-time basis while suitably employed. Here one might have an external requirement for part of the course. There is overlap between this proposed course and the existing Associate Diploma in Biological and Laboratory Techniques in the basic Chemistry and Biology components. One role to which subjects offered in a UG3 course could be put is to make available to adults seeking matriculation in the sciences, subjects which are not available by correspondence courses. It is obvious that the introduction of UG3 courses must be and will be very carefully scrutinised at all levels of approval. Our belief that an external demand for the course will be recognised in the survey results, together with the experience of this Institute and Department in external courses, leads us to press strongly for the introduction of a UG3 level chemistry diploma.

#### Other Activities

The need for inservice refresher courses is of particular importance for Chemistry graduates. The changes in instrumental techniques is a particular example. This Department will be running the first of such courses in Chemistry with a two day school in atomic absorption spectroscopy. In a broader educating role the Department is active in a group - The Central Queensland Association of Chemists which brings industrial chemists from a wide area in contact with each other and the Institute. The Chemistry Department has become more responsive to industrial needs and this has influenced priorities within subject areas and practical courses.



# MEMO

TO : Director  
FROM : John Smith

## OBJECTIVES, STRATEGIES, and ASPIRATIONS OF THE DEPARTMENT OF MATHEMATICS & COMPUTING

---

### ASPIRATIONS

We aspire

- (a) to provide a service teaching mathematics & computing on all courses at CIAE, and to do the job well (common experience elsewhere is that Math departments do not *always* have their heart in the job)
- (b) to teach professional courses particularly externally both in mathematics and in computing which are soundly based (i.e. open ended), and produce employable people with practical attitudes
- (c) to develop a coherent program of consulting and research, involving colleagues in other departments where practicable
- (d) because of the cross institute involvement at (a) and (c), to attempt to be a unifying influence.

### TEACHING SERVICE

The level of service varies from user to user, and the objectives of a subject is determined more by the user than the Department. Our objective is to do the job well, and the strategy

- . to gain particular expertise in service mathematics and computing (at present a member of the Department is on sabbatical doing research on the matter).
- . to seek the involvement of users, particularly by 'team teaching'
- . to recommend improved teaching strategies to achieve the users objectives (e.g. <sup>restructuring</sup> ~~restricting~~ DP for Business, increasing numerical emphasis for Engineering).

### PROFESSIONAL COURSES

Mathematics is obviously useful and important, yet mathematicians have the reputation of being impractical and capable only of reproducing what they know by teaching it. We aim in a small way to attempt to correct this situation. It is hoped that the B.App. Sc. (Mathematics & Applications) will be accredited shortly, and parallel structures in Arts & Business mounted in time for the 1977 intake of students. The work to achieve this has been done, we simply await accreditation.

# OBJECTIVES, STRATEGIES, and ASPIRATIONS OF THE DEPARTMENT OF MATHEMATICS & COMPUTING (CONT'D)

---

With this strategy we expect to have a viable (sufficiently numerous students) course for full-time students. The external course also seems likely to build up to quite healthy numbers.

Not all potentially competent computermen are interested in mathematics; a structure of Data Processing subjects for professionals will be offered as a B.Bus programme in '77, and possibly as a BA programme, and conceivably as a B.App.Sc. programme. The structure is to be offered for accreditation by the ACS at the end of the year. Demand for the programme is expected to be quite substantial. (Perhaps it should be added that the subjects are being taught this year, as parts of various courses).

There is substantial evidence of demand for postgraduate studies in mathematics and in computing, particularly if taught externally. The undergraduate programme is providing the experience we need to be able to offer computer subjects and applicable mathematics externally. The plan, or strategy is to make proposals for p.g. Diplomas (external) by the end of 1976 with the aim of mounting courses in '78. Whether resources will be available to keep to that timing remains to be seen. However plans are to integrate subjects (this is practical without affecting quality adversely) and the cost is unlikely to be very great.

Further development depends on the success of the p.g. diploma and our own professional research development. Masters in the Systems Science area seem a feasible aim, both in terms of potential demand and expertise generation. However it will take a while to get to that point through a future which is difficult to chart.

## RESEARCH & CONSULTING

A lot is happening, but still in the early stages. The strategy is to encourage all these tender buds until we can see which are going to give the best blooms. We then concentrate our efforts on the most promising.

Shortage of funds is not a particular problem (as long as computing capacity is there), indeed funds are available, the difficulty is to find ways of using them in Mathematics & Computing. The heavy teaching commitment slows us down, on the other hand students are being involved in projects ~~and~~ advanced undergraduate courses. Progress is slower than it would be at a University, but by no means at a standstill.

Involvement with colleagues in other Departments has been limited so far to consulting assignments (both ways); and offering advice

OBJECTIVES, STRATEGIES, AND ASPIRATIONS OF THE DEPARTMENT OF  
MATHEMATICS & COMPUTING (CONT'D)

---

on modelling and computing aspects of other people's research. However it is hoped that in the future with encouragement of cross-disciplinary research, and the appointment of a Director of Research communication will be freed to permit better co-operation.

JOHN SMITH

# CAPRICORNIA INSTITUTE OF ADVANCED EDUCATION

## Department of Applied Physics

For the Planning Workshop - The Institute in 1984.

There are two ways one can look at it - what we would aspire to be, and what is responsibly justifiable in the light of economic and other factors in the framework of the overall situation both within C.I.A.E. and in Queensland.

These random thoughts have not been considered by the staff of my department, but we have had many discussions on future roles of Applied Physics at C.I.A.E. and so I am confident that I speak for the department.

I would like to see C.I.A.E. offer good, well accepted courses in Applied Physics at the UG3, B.App.Sc. and M.Sc. levels, together with short courses at both the professional and general levels. Basic to the description of Applied Physics is the belief that the courses should concentrate on those aspects of physics and its application which are useful to the bulk of practicing physicists - classical physics, electronics - with emphasis on digital, instrumentation, analytical techniques, materials, and measurement. It would concern me greatly if, in the future, such courses were run down in the C.A.E. system while "fore-front of knowledge" "research aimed" courses were fostered - there should be a balance struck which is to the advantage of Australia.

Professionals in all areas should be required to attend short courses of an updating kind during each year of their "licence to practise". This not necessarily to mean updating in their specialism - perhaps an engineer might be required to attend environment studies in Biology or doctors a radioisotope tracing course in Applied Physics.

I would like to see staffing levels and funding such that the staff could engage in applied research at a vastly greater level than is possible at present.

The Department should be not only a teaching unit but also a source for those requiring help in physical properties, techniques and measurement.

These we would aspire to be.

But, we, and many other departments at C.I.A.E., at a time like this, should be directing a lot of our time and energy to looking at the present and future with realism even if it hurts. I am (painfully) aware of several factors which must be considered:

- (i) there has been and is(?) a swing away from science and engineering in tertiary institutions - it appears as though the number of secondary school students matriculating in "science" has halved over the last 10 years.
- (ii) at the present time (and probably for at least 3 more years) the economic situation will seriously effect tertiary education
- (iii) the teacher requirement (including science teachers) over the next five year period will seriously decline
- (iv) the swing towards liberal arts/general education has not been prompted by job opportunity - while there are not jobs available in North America for these graduates, the enrolment numbers are not in decline

- (v) as tertiary education becomes more readily available to a larger number of people and socio-economic groups, the barrier of the ivory tower mystique is being rapidly eroded and people are more insistently questioning both the type of studies pursued and their cost
- (vi) the closing of the gap in salaries/wages and the present employment situation of professionals has an effect on the school population (and parents) which will be felt for several years to come - and 1984 is not that far away.
- (vii) "participative management" or similar descriptive wordage gives rise to a requirement to rethink the kinds of education needed for all levels in the work force
- (viii) many really believe that quality of life is not something which goes hand in hand with standard of living which goes hand in hand with increased technological sophistication
- (ix) the paper is to be kept short so I'll stop there.

I believe that we (Applied Physics and the rest) have to rethink and rethink seriously. I am not convinced that a small bite-sized move in any given direction (say toward economy in an existing course, or set of courses) is the right way to proceed.

To that end, my department and the others in Science are looking closely at present at quite radical re-organisation (though being human and convinced of the worth of our present and perceived programs, not really forgetting our aspirations).



R. Young.  
Head of Department Applied Physics.  
26th May, 1976.

EXTERNAL STUDIES IN APPLIED SCIENCE AT C.I.A.E.

A Submission for consideration for Commonwealth Sponsored Overseas Students.

1. GENERAL

In 1974, C.I.A.E. offered by external study their courses in Applied Science -

Bachelor Degrees in Biology, Chemistry, Physics

Associate Diploma in Applied Science (Mathematics) (presently being accredited for

Bachelor of Applied Science (Mathematics and Its Applications).

Table 1 details a proposed timetable of subject availability in external science studies till 1980:

TABLE 1

Proposed Timetable of External Studies in Science to 1980

	1974	1975	1976	1977	1978	1979	1980
Mathematics and Computing I		*	*	*	*	*	*
Biology I		*	*		*		*
Chemistry I	*	*	*	*		*	
Physics I	*	*	*	*		*	
Liberal Studies I		*	*		*		*
Mathematics and Computing II			*		*		*
Physics II				*		*	
Workshop Technology				*		*	
Earth Science			*		*		*
Liberal Studies II			*		*		*
Physics III					*		*
Physics Project						*	
Acoustics						*	
Digital Systems						*	
Instrumentation and Control						*	
Astronomy						*	
Biology II							
Chordate Zoology			*		*		*
Non Chordate Zoology			*		*		*
Vascular Plants & Ecology				*		*	
Physiology				*		*	
Applied Biology				*		*	
Biochemistry			*		*		*
Biology III					*		*
Part A					*		*
Part B						*	
Liberal Studies III					*		*
Chemistry II			*		*		*
Chemistry III					*		*
Part A					*		*
Part B						*	
Probability and Statistics II			*		*		*
Mathematics III					*		*
Part A					*		*
Part B						*	
Mathematics Project					*		*

RECEIVED: 27.5.76 (6900)

523

COPIES TO:

It can be seen that the first and second years of all Applied Science courses will be available by external study by the end of 1977. The third year subjects will become progressively available in 1978 and 1979.

It is felt that we are now in a position to expand our operation outside of the Queensland context. We believe experience has shown that external study in Science is possible, though difficult, and that we should make the opportunity for such study available, under the conditions which are explained in the following sections, to students outside Australia who presently do not have such opportunity.

## 2. OUTLINE OF PROPOSED METHOD OF STUDY

We propose that overseas students study the first two years of the three year courses by external study and that the third year of the courses is taken at C.I.A.E. by full time study. As external students take two years to complete a full year of the course, this means that students would take 5 years to complete the course - 4 years in their own country and one year in Australia.

The most difficult requirement for external science study is laboratory work. We propose -

- (i) that students be permitted to undertake first year laboratory work at accredited institutions in their own country;
- (ii) that students complete the theory sections of the second year subjects in their own country, and those students who gain either a passing grade or a supplementary in those subjects are brought to Australia immediately examination results are known, i.e. during November. In the period between November and February (commencement of the academic year) students would be required to undertake laboratory work associated with their second year subjects at C.I.A.E.
- (iii) that students would complete the final year of their course as full time students at C.I.A.E.

While we recognise the limitations of our proposed method of study in second year, we feel, in general, that it is the only acceptable way of offering the course. There could well be places where students could complete the second year laboratory requirements in their own country, but this matter would have to be investigated in detail before such a proposal could be accepted.

In general, students would be provided with detailed notes, study guides relating to specific text books and general reference material. We recognise that the overseas student could well have problems in spoken English and consequently we would propose that during the course a number of audio cassettes would be provided for the student as much to improve the understanding of spoken English as to convey information; these tapes would be accompanied by transcripts to ensure students gain maximum benefit.

Students are expected during all subjects to complete a number of graded assignments which, in some cases, count toward the assessment in that subject. In some subjects, particularly Biology, it is essential that slides and slide/tape sets are sent to the students to make available to them material which is not available either in their text or reference material or in their local environment. A limited number of video tapes will be made available to students.

Tutorial sessions - at least once each semester - would be arranged at the "accredited institution" to assist students in overcoming their study problems by face to face discussion, and also to give the students an opportunity to be part of an institution for a time and to meet their fellow external students. We consider isolation and feeling of lack of identity with a real institution are important problems for external students. These tutorial sessions would be run by the local institution but it is considered desirable that at each tutorial session, one member of the C.I.A.E. staff be present.

### 3. STUDY CENTRES

It is felt most desirable to have "study centres" set up within the countries concerned with an external studies programme, as well as having the "accredited institution". We see the study centres -

- (a) located at such positions within the country that they are reasonably readily accessible by the students;
  - (b) act as a place for quiet study for students, a meeting place for students, contain a limited but selective reference library, have video tape (play-back) and projection facilities, and an adequate size tutorial room with normal facilities;
  - (c) should be available to a wider group of students than just the external science student we are discussing here, e.g. external students in Arts and Commerce from University of Queensland, local higher or adult education groups, etc.;
- and (d) be under the control of an appropriate local institution, e.g. Council library, school, adult education etc.

### 4. INITIAL PROPOSAL

It is proposed that initially we limit the availability of studies to six (6) countries/regions - Pacific islands; Papua New Guinea; East Africa; Iran; Malaysia; and Indonesia.

While obviously it would require a deal of discussion both within Australia and with the appropriate Governments, we believe that it would be a relatively simple task to accredit institutions in each of these countries/regions, and that the language barrier would not be an insurmountable problem.

A detailed proposal showing initial and continuing costs is in preparation for submission.

R. YOUNG.  
26th May, 1976.



## STATEMENT TO THE WORKSHOP

### OBJECTIVES AND ASPIRATIONS OF THE LIBRARY

Bruce W. Edwards - Chief Librarian

OVERALL GOAL: To provide C.I.A.E. with the best possible library service.

### PHILOSOPHICAL STATEMENT

This library is our window on the world. The better it is, the more valid is its representation of the world out there. Without an adequate library C.I.A.E. cannot claim to exist as a place of learning about that world: if it possessed a superlative library and nothing else, all else would follow. The Library also exists as a symbol on the campus embodying the concept of the unity of all different kinds of knowledge - the place where all disciplines meet and merge.

OBJECTIVE I: To contribute positively to the teaching programme.

Means: By acquiring, organizing and making available sufficient resources of print and non-print library materials so that:

1. Students have the tools not only to enable minimal grades to be obtained from set reading lists, but to enable full exploration of the dimensions of the subjects of study in the spirit of independent inquiry.
2. Academic staff may find materials yielding current knowledge of the state of the art or science for the contents or construction of relevant curricula.

OBJECTIVE II: To contribute positively to the intellectual vitality of teaching staff.

- Means:
1. By acquiring subject materials in sufficient depth to satisfy the needs of all academic staff for continued intellectual development in their disciplines and to make it possible for all staff to be kept fully informed of every significant new development in the areas of their expertise.
  2. By enabling academic staff to pursue research interests by collecting and actively seeking material via library networks in such areas, so that staff be not disadvantaged in their disciplines by the remoteness of this campus from the centres of learning and research.

OBJECTIVE III: To provide a stimulating cultural and intellectual environment of general reading befitting the only institution of higher education in this region.

Means: By providing a wide range of the best non-curricular cultural, informational, and recreational materials, in order to develop awareness of the richness of the diversity of knowledge and culture, in conformity with our avowed aim of producing rounded and truly educated graduates who are more than technocrats.

OBJECTIVE IV: To realise fully the educational role of the library.

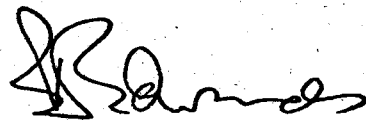
- Means:
1. By teaching the methods and skills required for independent study using library resources through programmes of reader education, so that library users learn how to find things out for themselves, to the benefit of their present education and future professional competence.
  2. By interpreting to the user the wealth of the library's resources through a high standard of reference and enquiry service.
  3. By vigorously promoting use of the library.

OBJECTIVE V: To become an Information Resource of real significance both to the Institute and to the region.

Means: To acquire, organize, and make available reference information on regional, state, national and international statistics and data of relevance to the internal needs of the institute and external needs of community, business, industrial and professional groups.

OBJECTIVE VI: To become a resource centre of local and regional studies.

Means: By seeking out, organizing for use and preserving for posterity current and past records relating to the locality, the region, and to a lesser degree the State, in the realization that this library has a special national responsibility for local studies.

A handwritten signature in dark ink, appearing to read 'J. Rames' or similar, located in the lower right quadrant of the page.

NOTES FOR THE CONFERENCE "THE INSTITUTE IN 1984"

---

INTRODUCTION

These notes, prepared by the PSA Executive, are intended to be a presentation of issues judged by staff to be significant and *not* a statement of PSA policy. (In the time available it is not possible for the PSA to thrash out agreement on the many issues which face us).

Interpreted in this light, these notes received the approval of the PSA <sup>as a contribution to the conference</sup> at its meeting on 26th May.

ASSUMPTIONS

Financial support in the short run is likely to be at about the present level. Beyond 2-3 years, expansion is possible but it would be on a much more rigorously justified basis than hitherto; equally it could be decided that CIAE in its present form is a long run uneconomic unit, and the Institute closed down.

Demand for courses is at present judged to be shifting away from Engineering and Science towards Liberal arts. However such trends are usually noticed about the time they end; some new direction is very likely. A move to demand for lower level 'bite size' courses is possible.

The main justification for the Institute in Rockhampton has to be in terms of decentralisation and regional development; the economics of teaching are bound to be better for large metropolitan units. However, the economics of development seem likely to be very favourable indeed for CIAE. Incidentally, in direct money terms the Commonwealth/State rake-off from Central Queensland is likely to be very much greater than the cost of the services they provide, for many years to come.

It seems likely that we have entered a period of rapid change, economically socially and politically. Whether the changes actually occur or not, viewed from the present it seems wise to be ready to adapt.

#### STAFF

Under tight budgeting and with changing course demands it is unlikely that the mix of staff recruited over the past ten years is ideally suited to current requirements, let alone future needs.

CIAE could adopt a policy of hiring and firing contract staff to match changing requirements, or it could develop a staff with the flexibility to meet changing requirements. The latter course seems desirable.

The adoption of this view could imply a substantial shift in staffing policy at CIAE. Generalists with knowledge of several disciplines may be valued more highly than single discipline specialists; taking a second first degree in another discipline may be a better reason for sabbatical leave support than a master's or specialist research; changing ones expertise in mid-career to a new discipline can be thought of as quite normal and desirable rather than a career set-back.

(The little experience there is of specialists changing course is quite encouraging. Engineers and physicists do make remarkably good social scientists; many mathematicians have outstanding musical or legal skills, and so on. In other walks of life, several careers per lifetime are quite common.)

#### COURSES AND TEACHING STRATEGY

Changes already discerned relative to what CIAE was teaching five years ago are

- . growing arts
- . growing external and decentralised teaching
- . the significance of UG3.

A fourth option apparently there in terms of social values is the teaching of Creative Arts, perhaps less formally.

It is a fact that a substantial proportion of our students do take or should take four years over a first degree, and a sizeable minority are of diploma rather than degree level intellect. A course structure

Diploma      2 years

↓

Degree      2 years (or 3)

with exemptions and acceleration saving a year for the able, would give students options suited to their ability and pace of learning. For external work, it is felt that the possession of a pre-qualification sooner than is possible at present would be a great encouragement.

There may be a significant demand for Continuing Education in Central Queensland. Special purpose courses are run at present in Rockhampton and other centres. However a general purpose education system for 'everyman' throughout the region has not yet been considered. It should be, as a very high priority.

The current tests of decentralised teaching (study groups in External, direct teaching in the p.g.diploma) have been sufficiently successful to warrant treating decentralised teaching as an important extension.

It is to be hoped that the current shortage of funds and the possibility of greater state involvement does not discourage the Institute from seeking students inter-state and internationally. They have a contribution to make to CIAE and Central Queensland quite out of proportion to their numbers.

A small college in a sparsely populated area is sensitive to enrolments; in tertiary education we are on a buyers market; we need to be able to be innovative in our product line to match changing requirements. Course innovation at present is rather difficult. One way of making sure we are testing new products is to commit a certain (small) proportion of funds to trial courses.

Some of these proposals may call for additional resources (not necessarily very much) in a constrained situation. To provide slack the following measures may help:

- . wasteful teaching practice should be discouraged  
(and subject integration encouraged)
- . a reduction of contact hours on all courses seem to be considered desirable
- . team teaching should be the rule rather than the exception  
(as a means of bringing available expertise onto courses)
- . self-teaching (perhaps learning cells) and assignment project teaching should be adopted as widely as practicable.

Accreditation and the maintenance of accreditability of courses may pose problems. Possibly procedures and values must be reexamined by the BoAE and Commonwealth bodies.

\*As a new tertiary institution in a buyers market, we have to look to employment of graduates. At present Heads of Department manage as best they can. It may well be worth diverting resources to develop a close relationship with large employers, research their employee requirements and follow-up on success and failure of our graduates.

#### PURPOSE OF THE ORGANISATION

The essential purpose of CIAE is in some way to act as a catalyst for the development and progress of Central Queensland. It must do this while not being too far out of step in cost per student with other tertiary institutions, and (apparently) with the allowance for growth in student numbers and hence economics of scale limited by government policy.

In fact the volume of research and development work taking place, and locally directed teaching is remarkable for an institute of CIAE's size and stage of development. However, this is not generally known to be the case; widespread local support is not strongly felt.

In the future very strong local support for CIAE and its activities may become an important factor for survival in choppy political seas.

The recent appointment of a PR officer, and the PSA proposal for a Director of Research will be helpful in freeing communication with the environment, but a great deal more must be done. Specifics could be

- . monthly public lectures
- . opening the Creative Arts Centre for general use and instruction and extending its scope to be a 'creativity centre' where amateur inventors and the like can come for advice
- . encouraging the use of Institute facilities by local organisations
- . developing centres in towns other than Rockhampton.

There are indications that CIAE feels it has a small perhaps, but useful part to play in relation to the developing world.\*\* (External Science, and a proposal at present before the PSA on UG3 are signs). CIAE could generate expertise on Asia and the Islands (a sabbatical in Tokyo or Jakarta valued more highly than Manchester or San Francisco), and become

---

\* added after PSA approval, but seeming to enjoy widespread support.

\*\*this hope may be borne out by the scribe's experience in technical cooperation work. As nationalities go Australians are very successful (being pragmatic perhaps) and as areas go Rockhampton is less conceptually remote from a developing country than New York or London (or Canberra).

a centre for technical cooperation. The tropical pastures work of CSIRO, CQ Railways, and Main Roads in CQ, and the North are also relevant in supporting the idea of Rockhampton as a centre.

An important policy step would be the adoption of the collegiate principle in viewing and running the Institute. The rigid distinction in terms of employment and style of working between "academic staff" and "support staff" is unrealistic in terms of our aims and an impediment to easy operation. It is unbecoming for our students to be 'people at CIAE' rather than 'members of CIAE.' It is admitted that "us-them" attitudes are a fact of life which cannot be eliminated by the stroke of a pen; nevertheless our present administrative structure encourages such attitudes and should be changed.

.....