



Higher Education: Blending tradition and technology

A C Lynn Zelmer, Editor



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Pedagogy and pragmatics: Initial delivery of the BInfoTech degree on the Sydney Campus

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Abstract

Central Queensland University (CQU) is a small multicampus regional university with approximately two-thirds of its 9,000 students studying at a distance. The Department of Mathematics and Computing (M&C) currently offers a number of award courses including the Bachelor of Information Technology (BInfoTech) degree.

The System Services stream of this applied computing degree is offered on CQU's new campus in central Sydney. M&C study materials and quality control procedures form the basis of the program while the Sydney Campus provides value added services such as tutorial support and access to computer laboratories.

Discussions on the Sydney Campus degree program began mid-1994 with implementation following within days. Tutorial support in communications and study skills (C&SS) and technical skills was provided to the students. There was also provision for scheduled and unscheduled computer lab time use.

The implementation has had remarkably few major problems although it has been expensive—in staff time and resources as well as in an unacceptable student failure rate. The 1994 'pilot' implementation, on the other hand, has provided the Department of Mathematics and Computing with valuable experience and a viable model for implementation on other campuses.

Introduction

Central Queensland University (CQU) is a small multicampus regional university with approximately two-thirds of its 9,000 students studying at a distance. The University has five campuses in Queensland—Rockhampton, Mackay, Gladstone, Bundaberg, and Emerald—although until recently Rockhampton was the only campus where studies were provided beyond the first year.

The Department of Mathematics and Computing (M&C) provided the first Australian program of professional computing studies at a distance and currently offers a number of award courses including the Bachelor of Information Technology (BInfoTech) degree. Several CQU courses, including Information Technology, are available in Singapore and Dubai where CQU study materials are delivered through local private educational providers.

In accordance with Australian Government policy CQU has accreditation agreements with both public and private providers of Associate Diploma and comparable awards for advance standing towards CQU degree programs. As a result of these agreements, and of the potential of the Sydney-based full fee paying overseas student market, mid-1994 CQU began to deliver Business, Arts, and Information Technology courses on a new campus in central Sydney. CQU study materials and quality control procedures form the

basis of the programs while the Sydney Campus provides value added services such as tutorial support and access to computer laboratories.

Discussions on the implementation of the Sydney Campus BInfoTech degree were initiated mid-July, 1994. The program design and an implementation plan were drafted late July, interviews for tutors were begun in Sydney in early August, and classes started on an informal basis about the middle of August. A thirteen week 'official' semester, followed by a study week and a week of exams, was eventually fixed for the Business and BInfoTech students beginning 29 August.

The author designed the initial Sydney Campus BInfoTech program described in this paper and has the responsibility for both maintaining the educational program and ensuring quality control in this applied computing program.

The Sydney Campus

The campus is located in the Sydney Central Business District to take advantage of convenient access by public transport and closeness to the inner-city ethnic communities where many of the potential students live. The facility includes staff and administrative offices, one large and several small classrooms, a 40 station networked computer laboratory, a student common room, and other support services.

The Sydney staff includes a small administrative and clerical staff as well as part-time tutorial staff, both for technical support and for general communications and study skill support. As the student body expands it is anticipated that some of the tutorial staff may be employed on a fractional or full time basis rather than hourly.

Bachelor of Information Technology

This course, which replaces the previous Bachelor of Computing, is a professional entry-level course and normally requires three years of full-time or six years of part-time study. Upon completion graduates will be eligible for Level 1 membership of the Australian Computer Society, the primary professional IT organisation in Australia.

The course aims to:

- provide a degree level education in Information Technology (IT) which meets Australian Computer Society (ACS) standards;
- prepare graduates either as software engineers or system services specialists;
- provide sufficient theoretical grounding and practical skills to enable the graduate to adapt to changing technologies and to pursue further studies;
- develop good communication skills; and
- develop skills for working in groups.

Interpersonal communication, teamwork, and self-motivated learning are continuing themes throughout the degree. Classroom studies are normally supplemented by project activities and industry experience.

Bridging units in mathematics and basic computing skills are available for applicants who do not have the assumed entry-level skills. Qualified students may also continue to honours or postgraduate study.

Foundation year and specialisation

An Information Technology professional requires a solid base in conventional applied computing, normally achieved at CQU by building upon the foundation of the common first year. In subsequent years students select either the Software Engineering stream or

the System Services stream. Students taking the Sydney Campus program are currently restricted to the System Services stream due to their business computing background.

- The Software Engineering stream has a strong emphasis on the design and development of computer software systems.
- The System Services stream has a strong emphasis on user support and implementing computer applications.
- Students in both streams are encouraged to take elective units from the other stream and from other disciplines.

System Services: The aim of the System Services stream is to prepare graduates capable of carrying out the design, installation, administration, integration, and maintenance activities required to keep computer systems operating effectively.

Computer systems are directed towards business improvement. A typical system is composed of interconnected computers and peripherals, systems software, applications software, databases, communications hardware and software, and, most important of all, users of many different kinds and computer skills.

A system services professional is a member of the team making this complex system of people, software, and hardware function as it should. The work ranges from user training, to screen design, to interface programming. Increasingly, system services professionals will also have to be aware of the legal, ethical, and social implications of the computer system and the work being done on the system.

Simply put, a System Services professional is responsible for enabling the users of the system to carry out their work as quickly, responsibly and efficiently as possible.

Electives: A wide variety of computing electives, listed in the CQU Handbook, are available to students. Some restrictions apply, some combinations are not allowed, and most units are only offered one semester per year. Students are also encouraged to select a coordinated sequence of non-computing electives for an inter-disciplinary approach.

Sydney tutorial support

1994, the plan: The Department of Mathematics and Computing, in collaboration with the Faculty of Business, agreed at the outset of the Sydney Campus development that it was essential to provide approximately an equal weighting of technical and communications and study skills (C&SS) support to the students. Some individuals are able to provide both types of support; others are more specialised, either technical or C&SS.

As the conceptual schedule below shows (nominal one hour blocks), it was also intended that the students would have computer laboratory access with a laboratory assistant or tutor available for assisting with productivity or unit-specific problems.

This conceptual schedule provided two hours per week of unit-specific technical (IT) support for each of the four scheduled units. It was anticipated that the first hour for each unit (identified as Unit_n tutorial below) would be a whole group activity, reviewing assignments and viewing a videotaped lecture (some units have taped lectures as a regular part of the unit delivery) as appropriate. The second hour (Unit_n Individ/SmGroup tut below) would be devoted to answering individual or small group queries.

A similar pattern was envisaged for the C&SS tutorial sessions, with an additional one-two hours per week for general C&SS contact. This was intended to provide unit-specific assistance as well as time for small group or individual queries, either on a first-come first-served basis or by appointment.

Conceptual student/class schedule

Mon	Tue	Wed	Thur	Fri	Sat/Sun
Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance
Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance	Open Lab w. Assistance
Unit_1 Tutorial	Unit_2 Tutorial	Unit_3 Tutorial	Unit_4 Tutorial		
Unit_1 Individ/SmGroup tut	Unit_2 Individ/SmGroup tut	Unit_3 Individ/SmGroup tut	Unit_4 Individ/SmGroup tut		
Unit_1 related C&SS	Unit_2 related C&SS	Unit_3 related C&SS	Unit_4 related C&SS		
General C&SS	General C&SS	General C&SS	General C&SS	General C&SS	
Unit_1 Sched_Lab	Unit_2 Sched_Lab	Unit_3 Sched_Lab	Unit_4 Sched_Lab	BInfoTech Sched_Lab	BInfoTech Sched_Lab
Unit_1 Sched_Lab	Unit_2 Sched_Lab	Unit_3 Sched_Lab	Unit_4 Sched_Lab	BInfoTech Sched_Lab	BInfoTech Sched_Lab

The Open Lab with assistance was intended to provide a designated time when any Sydney Campus student, including the BInfoTech students, could use the lab on a first-come first-served basis, knowing that a laboratory assistant would be available to assist with their productivity and general computer laboratory or network use problems. There was also a provision for specifically designated computer lab time for the BInfoTech students to work on unit assignments, etc., without the disturbance of other students or classes.

The conceptual schedule assumed that students would look to their local (Sydney Campus) tutors for initial support but that both tutors and students would have access to the Department's MCHotLine support service for additional services and ease of access to lecturers-in-charge. The MCHotLine is a Rockhampton-based first-contact support service (phone, FAX, and e-mail) to provide assistance to students with problems in their mathematics and computing assignments.

1994, the reality: Tutors were hired to conduct tutorials for specific technical units according to their qualifications and previous experience. While the initial program was designed to require the delivery of a minimal number of units and the tutors were hired accordingly, the uneven background of the students in the first intake necessitated the delivery of additional, primarily first year, units. Tutorials for these additional units were provided by the same technical unit tutors by extending their contracts and contact hours.

The computer laboratory was late in opening [and was rewired and upgraded during the first semester 1995, causing problems in that delivery] and the laboratory supervisor did not eventuate [finally hired March 1995, but with continuing difficulties]. This required

the technical tutors to provide laboratory support, frustrating both tutors and students, none of whom had any experience with the idiosyncrasies of the laboratory and network services. Limited network support was provided at a distance from Rockhampton and included senior staff installing software under telephone instructions from Rockhampton network technicians. Scheduling the laboratory, on the other hand, was not a problem due to the small size of the initial intake.

Each C&SS tutor had a designated class responsibility to provide unit-specific (whole group) support and as the first semester progressed technical and C&SS tutors worked more collaboratively so that students with difficulties were referred directly to the C&SS tutors for support with specific problems. The C&SS staff worked hard to understand the requirements of the technical units and made very valuable comments on the type and style of learning materials for individual units.

Not all of the students took advantage of tutorial support. As one tutor noted, *'when the students get behind in their assignments, they tend to ignore the tutorials, even when the tutorial support would be the most effective way of overcoming their difficulties'*.

The academic delivery by the tutors is supervised by Rockhampton based CQU staff with day-to-day supervision provided by Sydney administrative staff. Tutors were hired under the standard Australian higher education industrial award conditions and, in general, receive the same benefits and work under the same conditions as comparable part time staff on the Queensland campuses. The students likewise are governed by the normal CQU regulations and conditions with some Sydney specific variations, particularly with regard to fees.

Academically the 1994 semester was problematic with several students encountering major difficulties on the final exams. Further investigation is required to determine whether this resulted from inappropriate exemptions, tutorial or other teaching difficulties, the confusing implementation, or simply the minuscule sample size.

Planning for 1995: The 1995 intake should be large enough to justify expanding the C&SS support to cover a full five day schedule. The enrolments may not be sufficient to permit hiring full time staff, however, this is not a disadvantage as it desirable to have a team capable of responding to a variety of student needs.

Students were to be scheduled into group sessions with the C&SS tutors during the first two weeks of the semester to allow the tutors to establish a rapport with the students. Subsequent class sessions could then be scheduled as required but it was anticipated that the rest of the semester would probably require individual or small group support for specific problems.

Since students find it difficult to complete assignments expeditiously when they only have contact with unit specific tutors on a once-per-week basis, a somewhat similar pattern of support for the technical units was also proposed. For obvious reasons some tutors will not be able to easily respond to questions regarding certain specialised units, however, all should be able to provide at least the first level of support for all BInfoTech units offered and each technical tutor would still have designated responsibilities for the technical teaching units.

Other Considerations

The first regular semester of 1995 is just beginning as this paper is being written. It is fairly obvious that the limited enrolment in 1994 did not highlight all of the 'teething' problems which can be expected by the development of a completely new campus operation in a short period of time.

Sydney Campus staff and students need to feel that they 'belong' to the CQU system, and non-Sydney staff need to be aware of Sydney Campus needs, facilities, and services. CQU staff have been encouraged to visit the Sydney Campus when they are in Sydney, or close to Sydney, on other university business. It is hoped that this will continue, and will thus supplement semi-annual orientation week and other required visits. Financial arrangements may be required to facilitate this travel, as well as for the regular development of a videotaped or other orientation program to introduce the Department's staff to the Sydney Campus students [videotaped in 1995].

An office has now been provided for the use of the part time tutors. An office/conference room for 'visiting' CQU staff members [desk and table, chairs, telephone, telephone directories, white board, CQU Handbook and Staff Manual, current unit materials, etc.] is also required and might be used for student/staff interviews, etc., when not being used by CQU staff.

Sydney Campus staff have already assisted with quality control and quality improvement in the Department's learning materials. The anecdotal style of writing in some unit notes, for example, makes them very difficult for non-English background students to understand. While it was recognised that learning materials cannot likely be written in simplified English, there is a need to ensure that *all* materials are somewhat 'deculturalised'. Similar problems probably also exists for Australian background students, however, they do not spend as much time in attempting to understand the materials before they give up.

Both students and tutors on the Sydney Campus have requested access to word processing, spreadsheet, and other 'productivity' tools. Units such as Total Quality management for IT (TQM), Administration and Management, and Professional Issues require such tools to prepare acceptable assignments. As well, the students taking a unit such as Elementary Statistics are significantly disadvantaged by having to use a student-type program such as *MyStat* when they have previously used a first class spreadsheet program with statistical functions. This request has highlighted the need for similar facilities on other CQU campuses and the costs involved.

There is a need, both practical and financial, to optimise the number of units offered on any campus or in any semester. Sydney Campus BInfoTech students will have the opportunity to choose a limited offering of electives each semester; however, it is unlikely that all computing electives will be offered unless the enrolments increase significantly.

Conclusion

The implementation of the BInfoTech program on the Sydney Campus has had remarkably few major problems although the implementation has been expensive—in staff time and resources as well as in an unacceptable student failure rate. The 1994 'pilot' implementation, on the other hand, has provided the Department of Mathematics and Computing with valuable experience, both in delivering the program itself and in quality improvement of our learning materials and delivery systems. Of particular importance, the conceptual design for the program has been very functional—the integration of technical tutoring and C&SS support has provided the Department with a viable model for implementation on other campuses.

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