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Chapter 7

Integrating teaching and learning principles with IT infrastructure and policy

Carmel McNaught

Chapter Overview

This chapter explores some issues that arise for education development staff who provide advice relating to decision making about IT infrastructure and policy in their institutions. The chapter begins by exploring the nature of the modern university, contrasting especially the characteristics of corporate universities and those based on a collegial model. Some broad implications of these models for planning IT infrastructure and policy are outlined.

All modern universities, no matter what their character, have growing diversity and complexity. This is described and examples of how technology might either inhibit or facilitate effective educational practice are given.

There are two case studies in this chapter, one following on from the other. The lessons learnt from a large education development exercise in an Australian corporate university have been considered carefully and have been useful in framing an approach to working in the very different context of a much smaller collegial university in Hong Kong.

The Nature of Modern Universities

Universities worldwide are currently in an environment of intense change. In this environment, universities have had to reassess their fundamental business and the way they go about it. Information Technology (IT) is viewed as an important factor in streamlining their operations.

One way in which the importance of IT can be seen is the increasing trans-national character of university teaching. For example, there was a three-fold increase in overseas student enrolments in Australian higher education institutions during the period 1997-2002, and these enrolments are now 10 per cent of the total higher education student population. Further, off-shore enrolments increased from 22 per cent to 37 per cent of total overseas student enrolments during this time period (Department of Education, Science and Training, 2003). A snapshot from the other side shows that, in 2001, Hong Kong hosted more than 150 overseas higher education providers. The teaching in these trans-national programmes usually has a significant face-to-face component with home institution staff travelling offshore, sometimes partnering with local teachers. However, the majority of such programmes also use IT in some way or another. This mirrors what is happening in university programmes which are based largely in one country; for example, in 2002, 54 per cent of universities courses in Australia used the Web in some way or another for teaching and learning, though only 1.4 per cent of courses were fully online (Bell, Bush, Nicholson, O'Brien & Tran, 2002).

Furthermore, there are now new competitors in the higher education market. The three reports (Cunningham et al. 1998, 2000; Ryan & Stedman, 2002) explore the nature and potential impact of a plethora of new models for higher education provision. The models they identify are: 1) for-profit universities (of which the University of Phoenix is a well known example); 2) corporate universities (McDonalds is an often cited one here); 3) virtual universities (for example, the underperformance of the Western Governors University in terms of attracting a sufficient number of students highlights the fragility of the business models in this area); 4) public corporate universities (the US department of Defence is an active example); and 5) service companies (a range of companies selling technical platforms, consultancy services and courseware; an interesting example is Thompson Learning which is now linked to a consortium of traditional universities through the Universitas21 global partnership).

I have listed these examples, mainly to illustrate just how complex the higher education terrain has become. Ling, in Chapter 1, also emphasises this complexity. It is almost an apology in advance for the relatively simple model that I will explore below. I think it is still useful but it must be seen as needing other layers and nuances when applied to actual contexts.

There are several ways in which the diversity of models for the modern university can be described. One is McNay's (1995) four-fold classification of universities with orthogonal axes of policy definition and control of implementation: collegium (loose policy definition and loose control); bureaucracy (loose policy definition and tight control); corporation (tight policy definition and tight control); and enterprise (tight policy definition and loose control). The two universities described in this chapter broadly fit the corporation (RMIT University in Australia) and the collegium (The Chinese University of Hong Kong).

The model described by Downey (1995) helps us to focus more closely on the differences between a corporate university and a collegial one. Rather than defining axes of policy and control, Downey discusses the changing nature of the communities in the two different organisational models. He defines community as "a culture in which things grow" (p. 8). The important differences between the two types of university are not structural ones but relate more to relationships and values. The structural differences are consequences of, and not determiners of, differing community values. Universities do not fit neatly into one mode of other and all have aspects of both corporate and collegial systems. Downey describes a modern university as a 'trinity' of corporation, collegium and community.

The growth in size of the modern university has resulted in a growing emphasis on systems of budgeting and resource allocation, financial accounting, personnel management, infrastructure planning, etc.—all characteristics we associate with corporate institutions. The collegium, on the other hand, handles the decisions about who works and studies at the university, what areas shall be taught and researched, and what standards will be adopted. It is a "complex network of assumptions, traditions, protocols, relations, and structures within the university which permit the professoriate to control and conduct the academic affairs of the institution" (Downey, 1995, p. 6). The nature of the community determines whether corporate accountability dominates

academic standards or whether academic decisions drive the design of management systems. This tension is becoming more apparent in our universities.

Central vs Devolved Funding

Mechanisms of funding are often clear ways in which we can see this corporation-collegium tension. Universities with a more corporate orientation tend to adopt centralized models of funding and those with a greater collegial character tend to support more localized control.

Let's consider two examples. The first is the debate about whether university funding for courseware design and production (both online and print) should be through central or faculty-based processes. Teaching staff want the skills and expertise that exist in central units, but wish to have it provided without reduction in funding to faculties. The requirement to pay for services from central units can set up resistances. Most universities use both approaches (McNaught, Phillips, Rossiter & Winn, 2000). It is finding the appropriate balance point that is the challenge. Table 7.1 summarizes the arguments for, and issues associated with, each approach.

[Table 7.1 about here]

The second example is the consideration of the costs of facilities; these include computer laboratories, space, furniture, as well as the number and level of staff computers. Huge investments into IT facilities are a major item in all university budgets. Using student computer laboratories as an example, Table 7.2 summarizes the arguments for and issues associated with focusing the management of student computer laboratories at university or local level.

[Table 7.2 about here]

Tables 7.1 and 7.2 make it clear that the decisions are not clear-cut. These decisions involve considering the pros and cons of the two approaches and how they can be balanced within a specific context. Whatever model is adopted, better coordination between central and local facilities needs to occur.

Technology as a Facilitator or Inhibitor of Effective Educational Practice?

No matter what the nature of the university, every modern university is engaged in monitoring, developing and reworking their IT policies. In doing so, the tension between the productive possibilities and the potential disasters must be recognized. Technology can operate as both an inhibitor and a facilitator of change. It is an *inhibitor* if institutions become locked into heavy investments in the belief that they will get a return on those investments. However, it can be a *facilitator* of change if it is used to provide more options in the teaching and learning space. Let's examine each option in turn.

Technology as an Inhibitor of Effective Teaching and Learning

Here an example will make the potential dangers inherent in the relationship between technology and teaching and learning clear. The story of RMIT University's investment in technology is one which illustrates a clear vision of the desire for streamlined

corporate management. RMIT University is an ‘old’ (in Australian terms; RMIT began in 1887) technological university. It is highly diverse—it is a cross-sectoral (i.e., includes a vocational or polytechnic sector) university and has the largest number of overseas students enrolments of any Australian university. RMIT has had a clearly defined central Teaching and Learning Policy since 1995. This strong central policy is in keeping with the character of RMIT as a corporate university.

During the early and mid 1990s there was an increasing use of information and communication technologies (ICTs) in individual courses which increased students’ flexible access to RMIT courses in several ways. However, it became increasingly clear that a sustained approach to developing flexible courses for both on-campus and off-campus students required a more focused university-wide approach. In 1998, the University embarked on a comprehensive and ambitious project to align the information technology systems to the principles and goals of the Teaching and Learning Strategy. This was to be a \$AUD50 million investment by RMIT over the four years 1999-2002. It was formulated after an extensive report, the Information Technology Alignment Program (ITAP) Report which had 113 specific recommendations relating to the following six areas of work:

- a strengthened IT infrastructure;
- an online learning management system;
- an Academic Management System (AMS), fully integrated with the online learning management system to provide enrolment and subject and course progress records, electronically accessible to academics and students;
- an extensive review of all academic processes within the university in a business process re-engineering project;
- a strong commitment to a digital library; and
- extensive staff development in the use of technology for teaching and learning.

Prior to the ITAP Report, there had already been substantial investment by RMIT to promote quality learning outcomes. The investment was quite considerable, with approximately five per cent of each faculty budget being set aside, along with central money, to fund a programme and course renewal process. Also, major upgrading of the RMIT network, and student and staff computer facilities had taken place. The University tried to move on several fronts at once and many policies and processes were being formulated quite quickly. Many of us involved in education development and infrastructure renewal in the late 1990s at RMIT had a sense of trying to juggle several balls at once, and we tried hard to develop the art of keeping them all in the air and in relation to each other. It was a time of learning and growth; overall, a positive time for the University. Writing in 2000 I commented: “Have we reached critical mass yet, where the appropriate use of technology for networked learning will roll out across the University? Probably not, but we feel we are on the right track” (McNaught, 2001a, p. 123). Certainly, many of the components of the ITAP plan have stabilized and there is some evidence that the quality of the online courseware has improved (McNaught, 2001b).

However, the implementation of RMIT University’s Academic Management System (AMS) has dealt a crushing blow to the vision of a centralized, integrated set of IT systems supporting teaching and learning functions. The following extracts from the

Victorian Auditor-General's Office (2003) report on RMIT tell the story clearly (sums in \$AUD). The AMS is not functional and this disaster is crippling RMIT's financial fluidity.

The anticipated cost of implementation of the AMS to the end of 2003 of \$47.2 million represents 3.7 times the original implementation budget. RMIT, as part of the original budget, also allocated a further \$6 million per annum for 3 years for licence fees, additional implementation work, consultancies and software upgrades.

The current system has not provided the functionality originally planned and RMIT faces significant challenges in transitioning to a high quality student administration system that is sustainable in the medium to long-term, as well as funding the activities necessary to achieve this outcome.

Further, there has been a large amount of adverse media attention on RMIT, its management and prospects. Some of this is particularly feisty, such as the several articles about RMIT on the www.crikey.com.au site. It is not my intention to argue about how much of the allegations, comments and predictions about RMIT are based on evidence, and what the future is for this large technological university. What I want to point out is that this story clearly demonstrates that caution is needed in adopting the notion that a university can invest in large IT systems in the hope that there will be a return on that investment in terms of improved teaching and learning quality, which will then result in improved prestige and greater marketability for the university's programmes. It is just not that simple.

Technology as a Facilitator of Effective Teaching and Learning

Higher education rests on the premise that student learning can be facilitated by operating in a planned environment. If we don't believe that we should return to the days of unstructured discovery learning that many of us tried in the 1960s and 1970s (either as learners or teachers) and found very unsatisfying. Basically not only does the curriculum need to be planned, but also the nature of the total student experience over, usually, a period of years needs to be considered if curriculum alignment is to occur and result in demonstrable benefits for students. Educational design is essential for facilitating effective learning. However, what about the 'online' or 'e' aspect? The key thing here is not to think of online learning as being totally different from learning which occurs in traditional face-to-face education. The learning process is not different (after all, students are still people with the same neural pathways), but several significant aspects are different in electronically mediated environments. Also, the role of technology depends on a wide variety of other new factors in higher education.

Firstly, the global partnerships in higher education mean that various perspectives on knowledge need to be negotiated. Also, there is an increasing diversity in the students who enter post-secondary education. This diversity covers academic motivation and orientation, linguistic and cultural background, prior educational experiences, and approaches to learning. These students interact with teachers who have diverse approaches to and beliefs about teaching and learning. Fourthly, there is increasing diversity in the learning contexts students enrol in; these might be workplace learning,

studio-centred learning, programmes with intensive block teaching (often across national borders), cross-sectoral programmes and tailored industry-related programmes. Finally, the technology itself means that there is an increasing range of tools and strategies for us to use in designing programmes and courses. All this diversity is summarized in Figure 7.1. The important thing to note is that unless technology does support this fragile and complicated set of relationships, it is not likely to be a facilitator.

[Figure 7.1 about here]

Model(s) of Education development to Strengthen the IT/ T&L Relationship

The number of players in the education development area is large, including:

- more ‘traditional’ education development units, concentrating on general teaching and learning support; these can be centrally located or within faculties;
- units where the key focus is the use of information and communication technologies in teaching and learning; these can be centrally located or within faculties; often they are called flexible learning units and may or may not be integrated with education development units;
- units which focus on courseware production using technology; these can be centrally located or within faculties; some of these units have evolved from print-based distance education units;
- centrally-based Information Technology Services units which focus on the technology alone with very little reference to pedagogy; such units often manage the infrastructure of the online learning systems; and
- university libraries.

Hughes, Hewson & Nightingale (1997) in a study of 20 Australian universities describe three approaches to support for the use of information technology in teaching; - integrated, parallel and distributed. These approaches are defined, and the discussion in Hughes et al. is summarized, in Table 7.3. In reality, universities use a combination of approaches, though with a trend in one direction. The table is a useful tool for assessing the potential strengths and weaknesses of the combination of any particular set of support units in a given university.

[Table 7.3 about here]

Two cases will be described and analysed below. They will focus on the challenge of how best to support university teachers in renewing their educational programmes in ways that enable the potential of online technology to be utilized. The two cases are sequential and so the second builds on the lessons learnt in the former. This strategy has been chosen so that other education developers may be able to see that there is no ‘one size fits all’ method for education development. The work we do is crafted as a response to a perceived need and, in my own case, strongly influenced by previous experiences. Education development work is thus iterative and evolving.

A Corporate University Working within a Largely Integrated Approach

The first case is within the context of RMIT University, a corporate university in Australia. The university has an applied focus and interdisciplinary study is common.

The challenges of diversity are substantial. (Table 7.5 describes this diversity as a contrast to the more homogeneous nature of The Chinese University of Hong Kong.)

The model of education development adopted in the late 1990s was largely an integrated approach but there were aspects of distributed support as well. The education development initiative I will describe ran from mid-1999 to the early part of 2001. It was called the Learning Technology Mentor (LTM) programme. It was a university-funded initiative which provided for 140+ academic staff to have one day per week time release over one semester, in order to:

- learn how to use the University's recently established online education system,
- design and implement online learning in their faculty's education programmes, and
- promote and support similar activities among colleagues in their departments.

There were two LTMs in most departments of the university and some in central areas such as the Library. Each LTM was funded for 26 days time release, and some for longer periods.

The aim of making a significant investment in learning technology mentoring by academic staff—rather than establishing a specialist online design and production unit to service them, for example—was to achieve widespread adoption of online learning as part of effecting a change in the culture of academic work. Extended time release of more than one semester was required to achieve useful outcomes in some cases; these academic teachers were called Experienced Learning Technology Mentors (ELTMs). Many ELTMs engaged in more strategic roles in their faculties, such as quality assurance of online subjects, development and implementation of online publishing standards, etc.

All LTMs undertook an extensive staff development programme for about a week. Some of the key topics related to RMIT's vision with respect to the University's position as a major international technological university. The Boyer (1990) Scholarship model, which emphasizes that teaching should be a scholarly activity, has been used for some time as an integrating model for all RMIT work. Within this framework, the evolution of the Teaching and Learning Strategy over the last few years and the structure and function of the IT Alignment Program were discussed. There were also sessions covering a range of practical 'hands-on' sessions with online learning tools, as well as workshops in areas such as assessment and evaluation strategies for online learning, student induction methods, managing digital resources, project management, etc.

Over the two years of the programme, a network of individuals developed in several faculties that remained after the formal end of the programme (Gray & McNaught, 2001).

Many lessons were learnt from the RMIT experience of the LTM programme. There was a good measure of success (McNaught, 2003b) but further issues emerged during the process of the LTM programme. How can another university benefit from the story of this mentoring scheme set in the context of one particular university? In Table 7.4 I

have tried to sum up the positive aspects of the learning technology mentoring scheme as well as the issues and challenges which were not solved satisfactorily. Moving at once on several fronts—policy, infrastructure and support—is absolutely essential. Working across the university in all faculties and departments is also essential, so as to develop local ownership, build generalized capability and maintain productivity in a shared context.

This experience led me to develop a model of two-way integration of education development initiatives. There is a need to *horizontally integrate* initiatives so that staff development is integrated with curriculum reviews and key strategic courseware renewal projects. There is also a need to *vertically integrate* staff development activities, so that discussions with Heads of department and for Programme Coordinators are seen as essential to ensure support for teaching staff as they explore technology in their own teaching & learning. The need for the involvement of university leaders is emphasized by Pearson and Trevitt in Chapter 6. The RMIT experience strengthened my conviction that education development cannot be an isolated activity.

How can these two principles of vertical and horizontal integration be applied in another context?

[Table 7.4 about here]

A Collegial University Working within a Largely Distributed Approach

The second case is The Chinese University of Hong Kong (CUHK), an essentially collegial university. In Hong Kong there are eight higher education institutions (University Grants Committee a), each with a distinctive character. None of the Hong Kong universities is large, all having undergraduate populations of less than 10,000 students. There are three research-intensive universities, with CUHK being the one with the strongest Chinese cultural ethos. The vision of the University is stated: “To be acknowledged locally, nationally and internationally as a first-class research university whose bilingual and bicultural dimensions of student education, scholarly output and contribution to the community consistently meet standards of excellence.” This combination of the maintenance of Chinese cultural values together with an active outreach to the world is an intriguing challenge.

There is no doubt that CUHK is very different from RMIT. Table 7.5 clearly illustrates this. Both IT and T&L policies are much more devolved at CUHK than at RMIT. Funding is not largely internal funding and external government funding is necessary. The education development work here has been designed to build on the lessons learnt from the RMIT experience but is also designed to be situated within a university with a very different cultural context.

[Table 7.5 about here]

The Centre for Learning Enhancement And Research (CLEAR) <<http://www.cuhk.edu.hk/clear/>> is a new education development unit. It is centrally located for the reasons cogently argued by Chalmers and O’Brien in Chapter 4. It is an academic unit, rather than an administrative one and there is a clear expectation that

research is an essential aspect of education development. Hence, evaluation is an integral part of our activities. When a new unit begins with academic staff who come from a variety of backgrounds and experience, the process of utilising that rich set of prior knowledge occurs both informally and formally. Informally, we often say, “well, we tried ... and it seemed to work.” Formally, we developed a strategic plan. The principles of horizontal and vertical integration were enacted through the decisions we made about our preferred mode of working. These are described in Table 7.6.

[Table 7.6 about here]

In Table 7.6, I have italicised two strategies, one for horizontal integration and one for vertical integration. These two were chosen just to give variety to the discussion. Let’s see how, just over one year after the articulation of these principles, these two strategies are working.

Formal Liaison between Central Units with IT and with T&L Support Functions

At RMIT, the main support for IT in T&L was centralized. In addition, there were general links between other support units, such as the Library, but they were not very strong and were not formalized in any way. This is not surprising in a very large organisation, even one which adopts a corporate approach. I had a feeling that there were lost opportunities at RMIT and I wished to avoid this at CUHK, where I knew that I would have the additional challenge of services being distributed.

In a highly distributed environment, such as exists at CUHK, liaison often relies on incidentally meeting and finding common ground with colleagues. While this can be very effective, it can also mean lost opportunities, especially in a bilingual environment. The map described in Figure 7.3 has been developed as an iterative exercise involving several meetings with both the Information Technology Services Centre (ITSC) and the Library. There were also several more informal meetings with teachers and IT staff in faculties. Initially, I suspect that these meetings occurred because people were being polite to the new professor who liked drawing *Inspiration* diagrams! <<http://www.inspiration.com>> But interest grew and the increasing clarity of the relationships between the roles of the central units in supporting teaching and learning, as well as a clearer understanding of the relationships between the central units and small faculty-based support groups (often just a technical officer) has had significant benefits. For example, a joint CLEAR/ ITSC/ Library seminar series has been run; CLEAR has input to the design of technical platforms; a joint ITSC/ CLEAR project to begin evaluating the effectiveness of the online learning system has begun. There is potential for this evaluation to impact on IT infrastructure policy.

[Figure 7.3 about here]

Working at Programme Level rather than with Individual Teachers

Just how has CLEAR tried to achieve vertical integration within faculties? Much education development work in Hong Kong is funded by the Hong Kong government through the University Grants Commission <<http://www.ugc.edu.hk/>>. As in Australia, many of these government grants have been for individual projects, which have not resulted in university-wide benefits, let alone system-wide ones. These projects, devised by enthusiastic individuals, often working in isolation from their colleagues usually receive funding for short-term products and so evaluation is limited to the requirements of a project report produced in a relatively short time frame. In Australia, Alexander, McKenzie and Geissinger (1998) reviewed 104 of the 173 IT projects which received funding from the Committee for the Advancement of University Teaching (CAUT) in 1994 or 1995. One major concern was that many IT projects were not owned locally and so there was little institutional leverage from the work of individual developers. One recommendation was that: "Priority in funding be given to projects which are linked to the strategic plans of the faculty or institution" (p. xiv). This study supports our principle of looking at the context of the whole programme. So, in applying for a major grant, CLEAR staff focused attention on programme-level work. We were successful.

The approach we have taken involves working with all undergraduate programmes in the University. In many programmes, profiles are being developed of students' experience on three main themes: 1) personal development of various capabilities such as critical thinking, problem solving and interpersonal skills; 2) their perceptions of the teaching and learning environment such as level of interactivity with teachers and with other students, whether the assessment and curriculum were relevant; and 3) engagement in various types of learning activities such as individual and/or group projects.

Based on the findings in the three main themes, areas of strength within programmes can thus be identified. Then the teaching staff involved are being invited to assist in the development of guidelines and resources about how to engage students in active learning. The exemplary work of successful programmes will assist in the support for other programmes where curriculum and teaching challenges exist. Thus, cycles of student feedback and learning enhancement projects can be established. CLEAR staff will be available to act as facilitators for the overall process. Through this process it is anticipated that the teaching and learning quality of the programmes within the University will be demonstrably enhanced. This work has implications for university policy; it is a form of grounded quality assurance that suits a collegial university where responsibility and support for teaching and learning is distributed. Figure 7.4 illustrates the design of our approach.

[Figure 7.4 about here]

The student experience profiles are initially discussed with department Chairs and Programme Coordinators, so that broad parameters of what we are calling learning enhancement projects can be established. Then a tailored set of education development activities and courseware development projects are set in place in individual

departments. In this way the design of the educational programme is placed at the centre of the initiative, and technology is called into service to that end. This is congruent with the model of a distributed approach to quality assurance outlined by Patrick and Lines in Chapter 3. At the time of writing, consultations have taken place with 24 undergraduate programmes, with follow-up activity in many of them.

Coordination and Integration are the Keys to Success

The relationship building we have undertaken between the various support units at The Chinese University of Hong Kong enhances our work with particular programmes in individual departments. This is probably the main message of this chapter. Whether one works in a corporate and collegial university environment, coordination and integration are essential between:

- service units, be they IT, education development, central or faculty-based;
- courses within a programme;
- levels of authority in a department; and
- teaching and learning experience across departments.

The form that this coordination and integration might take will differ but the need is universal.

In order to ensure that technology is a facilitator of effective educational practice, it is vital to avoid the ‘techies and the teachers: them and us’ mentality. Good education development work places pedagogy firmly at the centre. In my view the technology is interesting and useful enough to slot in where and when it is needed.

Further, this chapter illustrates that lessons from one context can be applied to another if core principles are extracted. Indeed, it is the hope of the authors of this book that readers will be able to apply our learnings to their own contexts.

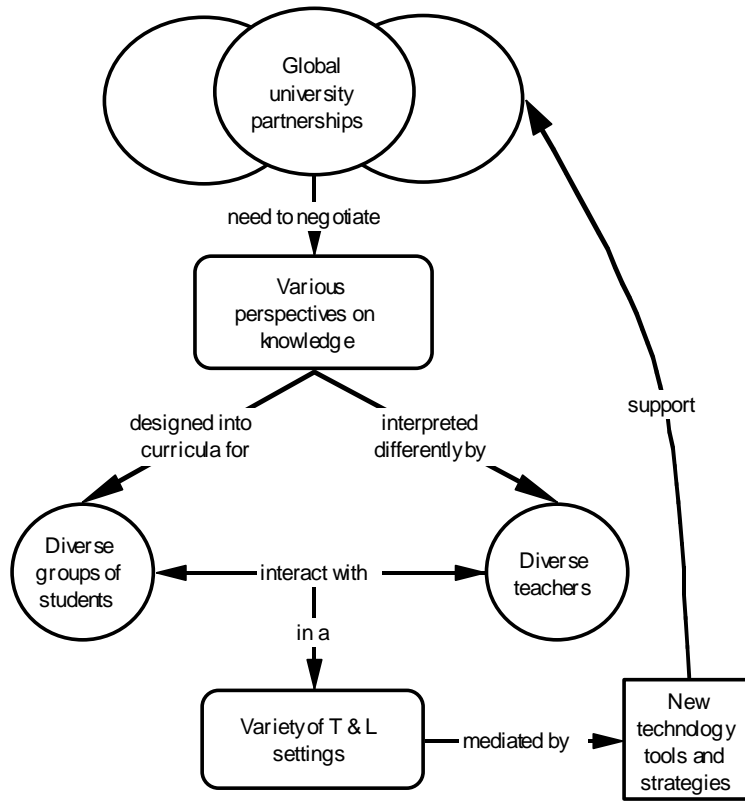


Figure 7.1 Diversity in higher education supported and mediated by technology (after McNaught, 2003a, p. 290)

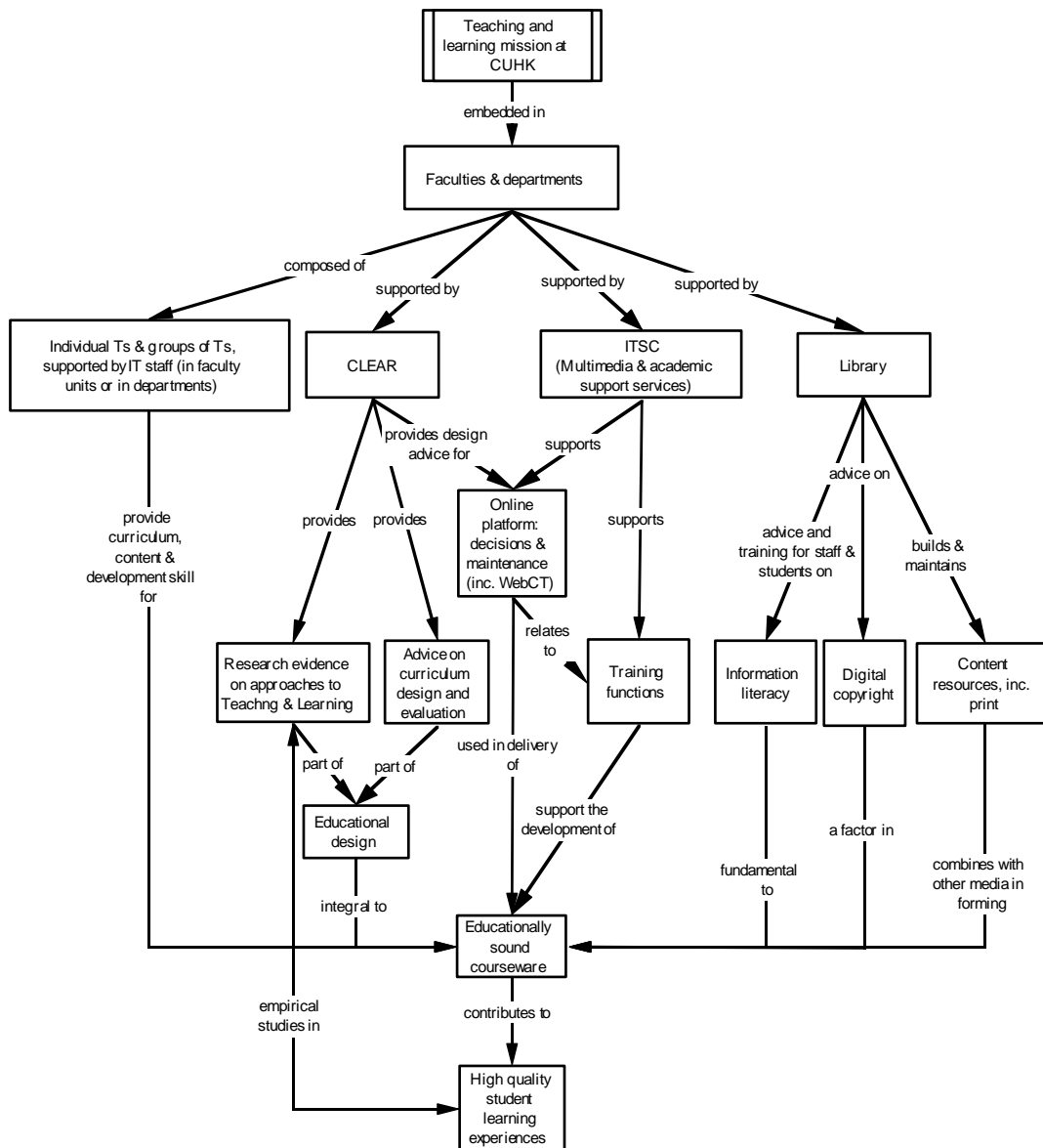


Figure 7.2 Map of relationships between faculty staff, ITSC, CLEAR and the Library at CUHK

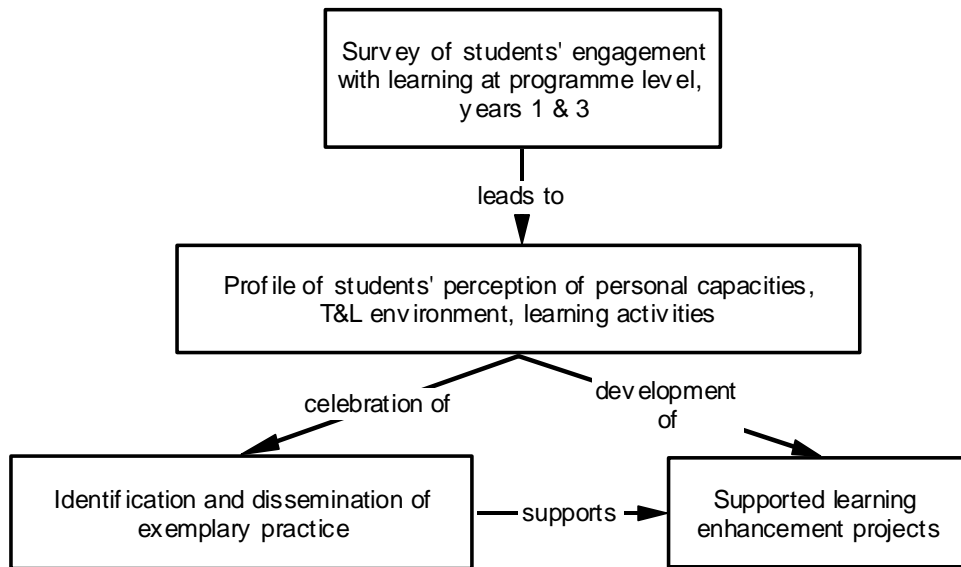


Figure 7.3 Education development at a programme level

Table 7.1 Pros and cons for centralised and devolved funding

Centralized funding	Devolved funding
<i>Points in favour of:</i>	
Can reduce duplication of expensive services by funding a range of projects, the design ideas and products of which can be used in other faculties.	Can fund projects based on local knowledge of curricula and faculty culture.
Can foster cross-faculty collaboration and communication.	Can develop stable ongoing teams for future developments.
Can allow university strategic priorities to be enacted.	Can allow local ownership and commitment to grow.
Can foster the integration of outside funding with university priorities.	Can source funding from discipline and industry-related bodies.
<i>Issues associated with:</i>	
If the funding committee is not broadly constituted, this can result in a restricted range of models being favoured.	Traditional practices in the discipline can dominate, and it may be difficult for some innovative projects to be funded.
Can be dominated by a few strong university personalities; this may disadvantage certain faculties.	Can be dominated by a few strong faculty personalities; this may disadvantage certain departments/ schools.

(McNaught et al. 2000, p: 113)

Table 7.2 Pros and cons for centralised and devolved management of student computer laboratories

Central university control	faculty control	department/ school control
<i>Points in favour of:</i>		
Supports equity principles in that all students can access.	Provides access for the entire faculty.	Special needs of students can be known and accommodated more readily.
University standards for level of machine can be adhered to.	Some overall discipline customisation in choice of machine and software possible.	Machines can be customised to suit individual subject needs.
University bulk purchasing or leasing easier.	Machines can be ordered to suit discipline needs but this may be more costly.	Machines can be ordered to suit discipline needs but this may be more costly.
Development of policy about 24-hour access (e.g. through a smart card) may be easier.	Local laboratories can foster student work in teams on projects.	Local laboratories can foster student work in teams on projects.
<i>Issues associated with:</i>		
The software and configurations cannot be specialised at all for particular disciplines.	Expense of customisation and maintenance.	Expense of customisation and maintenance.

(McNaught et al. 2000, p. 114)

Table 7.3 Integrated, parallel and distributed approaches to staff development for the use of information technology in teaching

Integrated approach (eggs in one basket!) Strong structural links between units or section of the one unit that provide general T&L support, support for using IT in T&L, and production support for courseware. Essentially top-down.	
<i>Benefits:</i>	<i>Issues raised:</i>
Coherent policy framework.	Ease of access by all staff limited.
Efficient planning of resources and avoidance of duplication.	Individual approaches less likely to be recognized.
	An emphasis on one technological solution may emerge and overwhelm educational design.
Parallel approach (never the twain shall meet?) Separate units for general T&L support and support for using IT in T&L	
<i>Benefits:</i>	<i>Issues raised:</i>
Allows due recognition to be given to a wide range of T&L issues (e.g. internationalisation) and not just educational design associated with the use of IT.	Cooperation between the various units may be difficult to achieve. There is a potential for confusion and competition to emerge.
Allows the development of expertise relating to the new technologies.	May result in a narrow range of educational issues being addressed in the IT in T&L units.
Distributed approach (organic sprouting) More bottom-up than the other two approaches. A range of units, centrally located and in faculties which are not tightly coordinated. Project management remains with local projects.	
<i>Benefits:</i>	<i>Issues raised:</i>
An 'organic' solution where unnecessary controls do not hamper innovation.	Can result in weak project management where there may be insufficient educational expertise.
Can be economical as skills are sought when they are needed.	Potential for innovations to falter without visible institutional support.
Can have more local ownership and stronger interpersonal relationships.	Can result in waste and duplication of effort and resources, including equipment.

(after Hughes et al. 1997)

Table 7.4 Successes and remaining challenges of the LTM programme

Factor	Key successes	Remaining challenges
Emphasis on local support	The ability to cater for varying contexts. Some departments were building sophisticated online environments for whole programmes; some were focusing on developing teachers' basic computer skills.	In departments where there were organizational problems (e.g. restructuring, unclear or overbearing management, rapid turnover of staff), no progress was made and keen individuals suffered. Implementation of the LTM programme was uneven and resulted in widening of divisions. The organized and innovative departments ended up with more funding than the departments which actually needed most help.
Culture of the department and faculty	Several faculties perceived benefits and thus were willing to collaborate in the broad processes, and to commit a significant level of specific coordination effort, to achieve outcomes for their departments.	Putting content online is faster and easier to achieve than thoughtful and innovative renewal of courses and programmes. Learning Technology Mentoring is not a quick fix. Building a culture of excellent process and practice in online teaching and learning takes longer, but may lead ultimately to greater competitive advantage. This perspective was not universally shared. Where organizational restructuring was occurring, this occupied most of the creative energies of the staff and there was little interest in any teaching innovation.
Workload	The LTM programme was premised on funded time release for academic staff to be mentors. This created genuine amounts of time for several mentors.	Finding suitable short-term replacement staff was an ongoing difficulty There was no time release for mentees.
Reward structure	Those staff who participated certainly added substance to their teaching portfolios, and thus enhanced their prospects for academic promotion on this ground. Participants had to have a desire to move themselves professionally into an area of continuous change and challenge; if so, they were able to derive considerable personal satisfaction from this opportunity.	There was an insufficient incentive compared to research rewards. Most participants weren't likely to find time to pursue qualifications in staff development or courseware production, and so could not take advantage of accreditation programmes that would formally recognize their expertise as LTMs.
Scale of programme	The legacy of this project was two or three academics (about 10% of academic staff) in each department who had actively taken part, whose academic practices were influenced by the experience, and who remained as models and a point of reference for their colleagues.	Sustained funding for follow-on activities of the network of LTMs, or for adequate growth of other support structures, only occurred in some faculties.

(after McNaught, 2003, p. 42)

Table 7.5 Comparison between RMIT University and The Chinese University of Hong Kong

Characteristic	The Chinese University of Hong Kong	RMIT University
Establishment date	1962	1887, but full university status in 1992
Nature of the faculties	Seven faculties. Comprehensive, including traditional Humanities and Medicine. A relatively small number of interdisciplinary programmes.	Seven faculties. Applied focus. cover the discipline areas across art, architecture, business, design, education, engineering, sciences (physical, life and social). The university has an applied focus and interdisciplinary study is common.
Number of students	9,500 undergraduate. 5,500 postgraduate.	Close to 60,000 students. ~25,000 undergraduate higher education and nearly the same number of vocational sector students, 10,000 postgraduate
Style	Collegial	Corporate
Diversity of student background	Chinese	30% born overseas
Diversity of student ages	Almost all undergraduates are straight from school.	45-50% are Mature Age (25+years).
Part-time and full-time student numbers	Only 3% undergraduates are part-time.	40% of students are part-time across the whole university.

Table 7.6 Enactment of the principles of horizontal and vertical integration

		Principle	
		Horizontal integration of education development with curriculum renewal	Vertical integration within faculties
Enactments		<p><i>Formal liaison between central units with IT and with T&L support functions.</i></p> <p>Less emphasis on open university-wide activities, such as generic workshops, and more on project-based work where outcomes can be achieved and then shared. This can result in the development of exemplars for dissemination of good practice across departments. There is a clear synergy between this focus on working with specific projects and the strategy of focusing on several levels of responsibility of programmes.</p>	<p>Maintaining connections at all levels in each faculty. This was begun with formal meetings with Deans, followed by contact with Chairpersons of all departments.</p> <p><i>An emphasis on working at programme level (which, in many cases, means working at departmental level) rather than just with individual teachers. This strategy means that, while we work with any individual teachers who request assistance, the majority of our time is spent on projects where departmental Chairs and Programme Coordinators are involved, alongside other teaching staff.</i></p>

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