Promoting Quality Outcomes in Higher Education Using New Learning Technologies: Processes and Plans at RMIT

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Abstract

Producing quality educational subjects has become a major concern of many institutions. Driven by the need to compete in a more global market and with government budgets shrinking, many universities are turning to the adoption of new learning technologies to expand their markets and improve the flexibility of their offerings. This paper considers how the economic realities associated with the new market place can be reconciled and even contribute to the development of quality educational products and outcomes. In this paper we explore a model of organisational behaviour based on a series of interlocking quality improvement cycles. We use this to examine current practice at RMIT and identify areas to focus on for improving performance and effectiveness of a range of institutional initiatives, associated with an institutional approach to coordinating the adoption of new technologies for online flexible learning and student management.

Keywords

Quality online subjects, Institutional planning, Iterative improvement, Quality assurance cycles

Introduction

The nature of online learning makes more public than ever the question of quality. The website of any organization is becoming the modern shop-

front; so institutions have to understand the nature of this new medium in order to get the most value from it in a marketing sense. The challenge is to use the technology to produce quality educational outcomes. This raises two questions:

- What is a quality online educational experience?
- How is the development of quality educational experiences measured and encouraged?

At RMIT, we are currently wrestling with both these questions. Producing quality educational experiences using online technology is a complex and costly activity. The development and implementation of new learning technologies can prove to be an economic black-hole unless there is careful planning and evaluation of the implications occurring at all levels of the institution. What happens in teaching has always been influenced by the context in which the classroom is situated. The production of quality online educational experiences involves consideration of many issues: educational design, interface design, copyright and intellectual property, content development, staff training, student induction, technical infrastructure, establishment of support mechanisms and the rationalization of administrative procedures. Many of these issues are out of the control or expertise of the teacher, and so will require a new way of working.

The New Learning Environment

An institution may have a range of motivations for adopting new learning technologies (NLT). NLT may be seen as a means of: maintaining its position by providing flexible courseware more responsive to student needs; introducing cost savings and efficiencies; and/or rationalising business processes and automating administrative tasks. Whatever the motivation, the implementation of new learning systems on an institutional level is complex. From an institutional perspective in the current economic climate, there is an imperative to get a return on the investment (ROI). Ultimately, though, a university will be judged by the quality of the teaching and learning it offers its students. To improve the learning experiences offered, it is essential that there is an eye for improvement from the level of the individual subject teacher up through the organisation to the activities of senior managers. Inglis, Ling and Joosten (1999, p. 143) comment:

> This does not imply that the vision of the project and the planning of its implementation need to be a top-down process. On the contrary, there needs to be

ownership, vision and enthusiasm at all levels of the organisation.

Institutional quality improvement processes

There has been a concerted effort in recent times to set up quality processes within many institutions. This has led to the development of student feedback systems which individual teachers and course teams may use to improve the next offering of the subject. Such a system is predicated upon the evaluation of an educational activity or project leading to improvements in subsequent attempts; this is congruent with the action inquiry process outlined in Phillips, McNaught, Rice and Tripp (2000). The learning from this process is too precious to be left untapped within any one subject or minor project. Unless the information is shared, the wider institution does not necessarily benefit as much from these projects. Much can be gained by facilitating the sharing of the new knowledge and experience across the institution. Laurillard (1997) contends:

> The university must have a technical and pedagogical innovative environment for R&D projects providing opportunities to trial and experiment and to collect feedback on these via the quality assurance process. … Many such pilot experiments in universities have been conducted in isolation from the universities management process.

Unless the evaluation occurs in the context of the institutional processes at large, then the valuable learning opportunities inherent in these projects will be lost to the institution.
Bain (1999, p. 170) considered evaluation reports of several projects, and concluded that the context in which an innovation is occurring has to be considered.

> …the benefits were short-lived and/or did not transfer. This finding offers a salutary caution to all educational innovators and underscores the need to view innovation within the institutional contexts in which it will thrive or die

Thus the institutional quality processes need to be such that the culture and procedures encourage the flow of information across subject, course, departmental and faculty boundaries. It is the contention of this paper, that where quality cycles do not enable this flow of information, the lessons learned do not easily go beyond the subject concerned, students do not benefit and the ROI is reduced

A model for promoting institutional quality processes

Laurillard, (1993) proposed the ‘conversational model’ of learning where a ‘conversation’ can be considered as a two-way flow of information. In essence, she contends that learning occurs when the student acts for a

particular purpose and then receives feedback on that action. The student then assimilates and reflects upon the feedback in order to re-conceptualise and articulate a new understanding to the teacher. This is a classical action research cycle of goal-action-feedback-modified action integral to quality improvement processes. The critical part of the process is the reflection. Biggs (1999, p. 60) supports the importance of reflection as part of the learning cycle: “my own assumption is that helping teachers to improve their teaching is best done using a theory that helps teachers reflect on what they are doing”. Laurillard (1997) claims that a similar model of learning can be applied at the institutional level.

> The educational institution has to be able to be responsive to change ... able to reflect on the degree of convergence that is achieved in the learning conversation and construct an adapted environment. ... Its internal structure ought to be similar to the conversational framework for an individual if it is to learn from experience.

We can then consider the meaning of ‘learning’ as far as an institution is concerned. It means getting better at what it does, learning from experience. There is no doubt that the adoption of new learning technologies is, for most institutions and staff within them, a learning experience. Feedback obtained on a project or program is used to inform the next iteration or to inform new or related projects.

Establishing an institutional learning conversation

As indicated earlier, it is not enough to have ‘learning conversations’ or ‘quality improvement cycles’ operating at distinct levels within an organisation. There must be overlap so that these conversations occur across boundaries. For institutional learning to the project team must have a conversation with the institution. In the context of a project, to improve the teaching and learning in a subject, the teacher becomes not only a researcher of a discipline, but a researcher in how to teach the discipline, which is the fourth Boyer Scholarship, Boyer (1990). A similar point was also made by made by Laurillard (1993). The benefits of the project team sharing its learning with other staff will lead to improved learning outcomes for a wider range of students and staff. With the restricted budgets at play in the economic environment in which today’s institutions operate, it is too costly for projects to be funded without any institutional benefit coming from them.

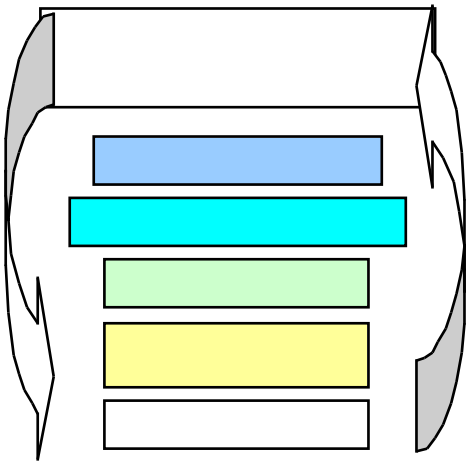

Figure 1: Overlapping quality improvement cycles

In fact, one can imagine an almost unlimited series of overlapping learning conversations (see Figure 1) going on within an organization driven by feedback and reporting procedures. It is in this way that a culture of quality improvement has to pervade an organization in order to get the best results. Quality is achieved over time. An institution may have an ideal which it strives to reach, but it must take the view that numerous and continuous cycles are required to move towards the ideal. The ideal itself may never be achieved since it may alter as needs and technology change.

Quality Subject and Courseware Production

Quality assurance criteria should be seen as a means of gauging what has been achieved and what needs to be improved. Quality cannot be mandated. When we consider the complexity of introducing new learning technologies, an iterative approach to improving quality is very important. Taylor (2000) explains this in terms of nurturing cultural change. To promote quality in teaching and learning is a complex task. In the classroom, it has to do with the teaching practices, student capabilities, resources, design of the subject and the types of assessment undertaken. Many staff may need professional development in some of these areas to go along with the training and professional development associated with the use of new learning technologies themselves. Taylor (2000) states:

> Some faculties will have to go through what might look like a sub-optimal phase of development, but only by doing so will they be able to move forward. This is particularly relevant in an environment where implicit teaching knowledge and expertise will need to be articulated before a multimedia approach to the subject can be considered or designed.

At RMIT, the strategy is to use the new technology as a means of encouraging a re-thinking of teaching and learning practices, not simply transferring established practice to an online environment. In this case, the technology becomes a medium to promote professional growth. Teachers may therefore feel uneasy on two accounts; they are learning new skills while operating within an unfamiliar environment. There is also a range of other considerations necessary to produce quality courseware in the online environment: copyright and intellectual property issues; design and usability issues; navigation issues; accessibility issues. Without institutional support, many teachers will feel such a task is overwhelming. It is clear that institutional support, professional development for staff and a staged process of development will be the only realistic ways to develop quality subjects. It is the function of management to set the scene for this renewal to occur by developing policies and providing the resources and support to teaching staff. The outcomes of the educational programs can then be monitored to evaluate the effectiveness of these policies.

The RMIT Experience

In 1998, RMIT commissioned a team to investigate how the information technology policies and the Teaching and Learning Strategy of the University could be aligned. This group produced a report 'The Education, Training and Information Technology Alignment Report' which became known as the ITAP Report. A team was set up to manage the development and implementation of an institutional system using IT to enhance and support the administrative and educational functions of the University. The ITAP Team, now called Learning Technology Services (LTS), developed the 'RMIT Distributed Learning System' (DLS) as a web-based set of tools to support teaching and learning activities.

Prior to the DLS, there was a lot of activity across RMIT to produce online learning experiences. Individual staff had developed and used web-based learning materials; on diverse software platforms. The DLS was the first attempt at an institutional wide learning system. The benefits of this approach to the institution and the individuals were obvious: providing central support, training, greater security, better linking with administrative systems, quality assurance processes, a consistent interface etc. Initially, it was unclear how this corporate initiative would be viewed by the RMIT community, but it soon became apparent that there was a

large number staff waiting to begin the process of putting learning material online.

Version of the DLS	Number of registered subjects
Benchmark-semester one 1999	45
Semester two 1999	225
Semester one 2000	683

Table 1: Growth of number of subjects registered in the RMIT DLS

The experience of the Benchmark in semester one 1999 (McNaught et al., 1999) made it clear that a more systematic approach was needed. Each faculty was asked to develop 'Course and Subject Renewal Plans' in accordance with a set of guidelines produced by the ITAP team, and this plan was to be used to identify subjects for renewal according to faculty priorities. This was seen as a means of directing the resources strategically. Along with this, the DLS developed a DLS Planning Tool. This tool was produced in May 1999 and was released two months before the start of semester two 1999. It was to assist staff to identify consider the many issues which require consideration, when developing a subject for online delivery. Such issues included:

- clearly defining the educational purpose,
- the content development support required,
- the level of interactivity being considered,
- the expertise available to the development team,
- the professional development and training required by staff,
- the student induction and access issues,
- the intellectual property issues, and
- resources available.

The Planning Tool was to be used by key faculty personnel to work with the leaders of the subjects. Only about six of the subject coordinators (out of 225) actually returned a completed form. Many staff did not even hear about the form and there were some complaints about the level of detail it required. After one such complaint, the form was modified to a one page application form (compulsory) and a detailed planning guide (optional) for semester one 2000. There is no evidence of any subject team making use of the optional planning guide. Following an evaluation report of the DLS in semester two 1999, (Kenny, 2000), the issue of quality and planning to go online has become a major focus for the DLS during 2000. In May 2000, all subjects using the DLS were reviewed against university quality assurance guidelines and evaluative feedback was provided on all subjects.

Drivers for Institutional Change at RMIT

There has been substantial investment by RMIT to promote quality flexible learning outcomes. The investment is quite considerable, with approximately 5% of each faculty budget being set aside, along with central money, to fund the course and subject renewal process. Also, an on going major upgrading of the RMIT network, and student and staff computer facilities has occurred over the last two years. A list of the major institutional drivers is given in Table 2 with some commentary on the effects of each. Many of these drivers are yet to bear fruit. Our contention is that although there has been considerable effort to get institutional involvement in the initiative, because the underlying quality improvement feedback and reporting loops are not yet in place, much of the strategy is seen to be top-down, with insufficient information reaching the staff or students. Figure 2 shows a proposed RMIT operating model. The heavy boxes represent the boundaries of the organization across which information must flow in both directions. The large black arrows represent information flowing across these boundaries. Many more boundaries could be added (e.g. departments, support services, etc.) but have not been added for simplicity. While this model is set-up for the context of RMIT University, it is also generic enough to be adapted to other institutions. The arrows in Figure 2 which are dotted represent the information flows which are either not in operation as yet, or which operate on an ad hoc or isolated basis. The diagram shows several gaps in the current institutional processes at RMIT and future attention needs to be devoted to establishing these communication flows and promoting the culture in which they will operate.

Planning and project management

The Course and Subject Renewal Strategic Planning Process was developed in mid-1999. The process had its problems as any new process will: it was not clearly understood by development teams, the development timelines were too short, the resources needed were not clearly identified, and there was no mechanism put in place to adapt and improve the process despite the two evaluation reports (McNaught et al., 1999; Kenny, 2000). For quality improvement to occur, this evaluation information must be used to improve operations.

Institutional Driver	Comment
The RMIT Teaching and Learning Strategy	This has been a key strategy for driving change in the university over the last five years.
The ITAP report had 113 recommendations about linking IT developments with teaching and learning needs.	The ITAP report is driving much of the change associated with the DLS and the Academic Management System (AMS, see below)
The institutional target of 60% of all subjects with some flexible delivery components by the end of 2000.	This target has generated a lot of interest and activity. Led to rapid growth of number of subjects within the DLS. The target itself takes no account of the iterative development required to produce quality outcomes.
Creation of Directors of Teaching Quality (DoTQs) and Directors of Information Technology (DoITs) posts in each faculty as resources to direct and influence policies.	Key people in the adoption and promotion of the institutional strategy. Important in developing workable quality assurance loops across the institution and shaping them to work within the context of their own faculties.
Development of an Academic Management System (AMS) for mid-2001.	Major initiative to develop a computerised system to streamline and standardise many of the university administrative procedures.
A Business Process Re-engineering (BPR) review of the university administrative systems	1999 project which reviewed the administrative processes of the university in preparation for the implementation of the AMS.
Establishment of the Distributed Learning System (DLS)	DLS operates using a secured central server system on the RMIT network. Support, professional development and training offered to RMIT staff and students.
Faculties asked to develop • IT Strategy Plans for the strategic re-development of IT infrastructure. • Course and Subject renewal guidelines for the strategic re-development of subjects and courses.	Have the potential to promote meaningful change, but little evaluation and reporting occurs. Feedback and accountability loops do not function well, so there is little direct evidence of the effectiveness of each strategy and how it might be improved. It is hard to get an institutional picture, or it takes too long for problems to be identified.
Selection and training of Learning Technology Mentors (LTMs) within each department to work with staff. (See McNaught & Kennedy, 2000).	145 staff trained to work with staff in their own departments, to facilitate communication between the staff and the DLS and to mentor them as they renew their subjects The process is not necessarily supported by all faculty and departmental processes.
New QA processes for online subjects	These have just been formally accepted by the University after extensive consultation.
Staff workplans	Staff are required to produce a workplan to set out expectations linked with their professional development for the year. Need to more closely link the workplans with involvement in strategic renewal projects and to promote evaluation and reflection.

Table 2: Institutional drivers for change within RMIT

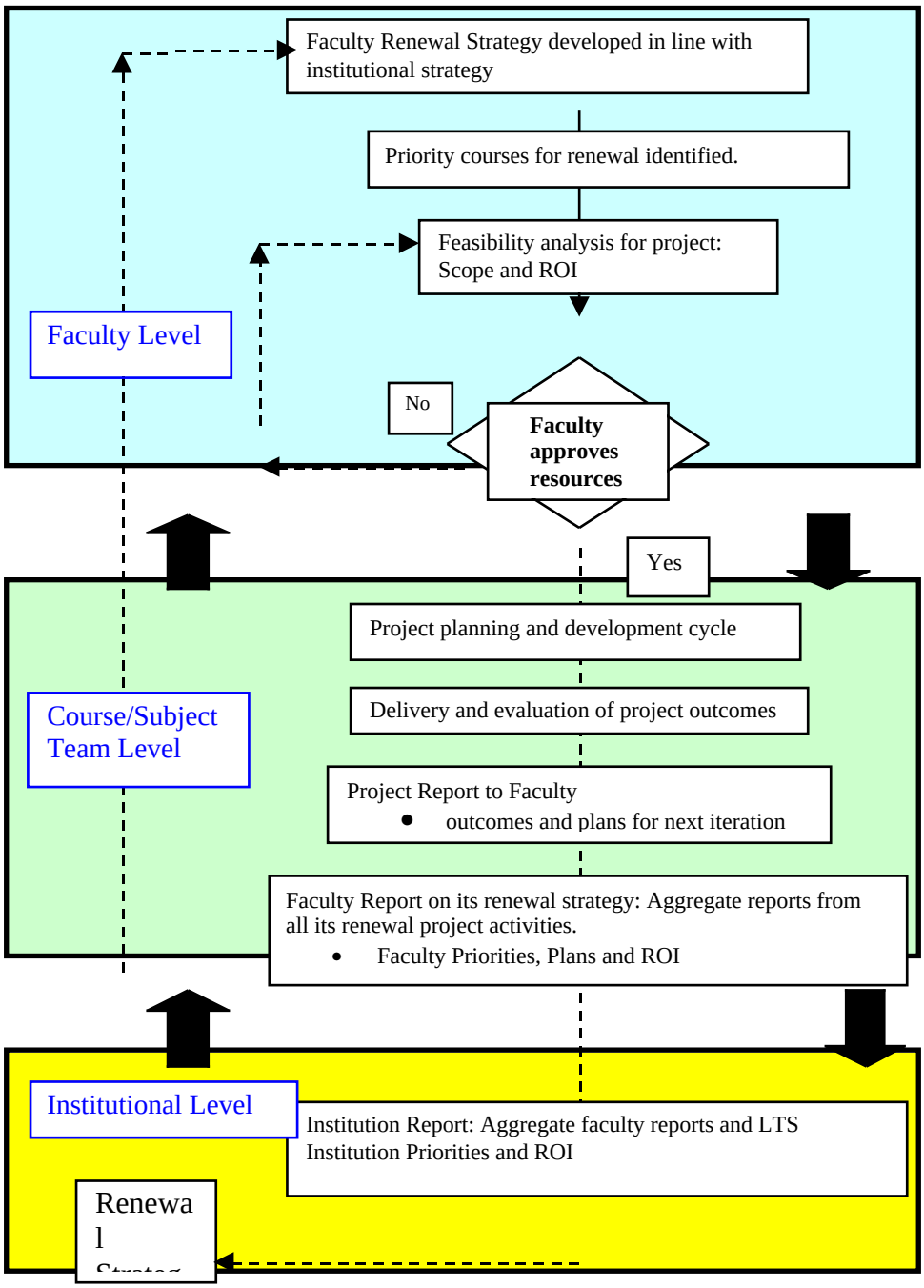

Figure 2 RMIT model for institutional quality processes for course renewal

Research indicates that a successful project should appoint a project manager to oversee its development and implementation (e.g. Alexander, McKenzie and Geissinger, 1998). In the model of figure 2, it is proposed that subjects or courses for development are identified strategically by the faculty processes. It is also wise to institute a feasibility process to explore the scope and likely benefits and costs associated with any significant project proposal before it is begun. Each becomes a development project in its own right and is resourced accordingly and progresses according to a recommended project planning process. The subject goes into its delivery phase during which evaluation data is collected which forms the basis of the project reporting.
Evaluation and reflection are critical to articulating the learning and improving quality. Therefore the processes need to enable this information to pass between the various groups. The reporting procedures are a means of achieving this information flow. For example, a subject team receives feedback on the operation of the subject which needs to be analysed and reported on to improve the subject for the next iteration. Some of this feedback information is also be required by the faculty (or department). Not all the information may be relevant, but a means for the faculty to capture the relevant information and aggregate it with that from other projects, analyse and report on it, will enable the faculty to gauge the effectiveness of its Course and Subject Renewal Plan and influence the next iteration of the Plan. Similarly, the institution as a whole needs some of the information so that an evaluation of the institutional strategic approach can be made. Hence the reports of each faculty need to be aggregated.

Culturally, it involves quite a degree of change for most staff to adopt this approach to development. Depending on the complexity of each project, it most likely will require a development team with a range of expertise. While there are examples of individual teachers and subject teams producing excellent work, most academic and teaching staff at RMIT are not used to working so closely with non-teaching staff such as graphic designers, IT support staff and so on. The fact that staff in the process will need to explicitly reflect on and evaluate their teaching practice will lead to better quality teaching. The reporting mechanisms are important so that the documentation of the learning occurs and that it is shared with colleagues.

Quality Assurance and Systems Supporting Online Teaching

A quality improvement process relies on having evaluation information on which to base decisions for the next cycle. In many cases, the timelines and demands set out for the DLS project were far too tight, so that planning and specification for the next version was often done before the previous version was properly evaluated. For instance, at the system infrastructure level, there was insufficient time allocated to properly develop and test the delivery systems. Delays in gaining approval for purchasing servers further reduced the time available, which led to other delays in implementing the processes to set up and test the software developments. The time scales are critical in initiatives such as these. In both semesters, the DLS operational systems were not released for staff use until after the semester had begun. The subsequent bugs and technical problems which occurred should have been discovered in a testing phase rather than a live delivery phase. Much of this information is contained in an evaluation report, Kenny (2000).

The consequences of the lack of coordinated planning has been shown up during a recent quality review of the subjects registered in the DLS. As mentioned earlier, there was an institutional target set to achieve “60% of subjects with a flexible delivery component” by the year 2000. This became misinterpreted across RMIT as meaning “60% of subjects with an online component”. Experience has shown that this target does not account for the complex reality of producing quality learning systems and subjects. It seems that goals set too high can be just as costly as those set too low.

The message is to establish clear lines of responsibility with planning and evaluation and reporting cycles in place. The managing body at each level can then report on progress to the wider RMIT community and thereby influence policy development. In order for problems to be minimised in future, there has to be consultation on the development of a process, which when adopted, has to be backed up with adequate resourcing and high quality support resources and professional development activities. Of course the process itself will be improved and refined during subsequent quality improvement cycles also.

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