

Adoption of flexible delivery mode (fdm) in a conventional mode teaching environment: a report from Clayton campus, Monash University.

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Abstract:

Eight steps are identified in the adoption of flexible delivery mode (fdm) teaching on a 'traditional delivery' campus (such as Monash University, Clayton), each one showing a change in the relative significance of the technical and institutional constraints that must be overcome. Success demands compatibility between methods for overcoming these two constraint types. It is also shown that, subject by subject, both 'off the shelf' and team-generated input must be brought together, but that the relative significance of these components varies from one product to another; and the nature of the target market for all or any product(s) varies over time; and that, as a result, the cost-benefit ratio of 'migration' to mfd is hard to predict .

Introduction

It has been argued that the convergence of computing, telecommunications and the cognitive sciences will soon relegate campuses emphasising traditional (face-to-face) teaching to the 'cottage industry' category (eg see Dorman 1997). The synergy implied by this convergence of science and technology grows steadily more powerful and flexible. In educational technologies today, changes (and challenges) emerge more and more quickly. Soon traditional universities will be challenged by global/mega-universities (eg see Daniel, 1996) offering whole courses by flexible delivery of one kind or another. Already individual institutions must look not only to maintaining (or improving) their identity in the world of research/ideas, but also to establishing their status in terms of guidelines for flexible delivery of teaching products (eg as rated against guidelines drawn up by the Commonwealth of Learning URL¹, see also Mugridge, 1997).

Clearly the universities that wish to claim a future must be in 'change management' mode. New educational technologies must be adopted and institutional momentum re-directed somewhat. Flexible delivery of teaching is called for.

Flexible delivery: what is it?

Monash University has adopted fdm teaching in principle/policy. It is important to define terms that feature in policy documents. In some cases, terms so used refer to concepts and practices that have evolved clearly. In other cases a term might be used in general sense only. 'Delivery' really refers to a product or service. Use of the term in education emphasises the market oriented approach that our University must follow in competition with peer institutions and other producers. Usage of the term 'flexible delivery' is part of establishing a juxtaposition between conventional teaching, face-to-

face at scheduled times of set total duration on the one hand (conventional mode), and delivery unrestrained by timetables and set venues on the other.

The adoption of flexible delivery mode teaching can be thought of as an attempt to service a market that is wider than that comprising self-identified groups willing and able to travel regularly to teaching venues. Access and equity considerations are well served by this new approach. Adoption of fdm also serves the need felt by universities to expand the size of the student/customer/client base. Any success in this will be at least partly at the expense of rural institutions. Thus the adoption of fdm may be essential for institutional survival, in which case it is clear that those institutions more successful in adoption of fdm will prevail over those that are not. All conventional delivery mode universities are, of course, 'late adopters' of fdm in comparison with the Open Learning mega-universities (eg see Daniels 1996).

The flexible delivery market

The convergence of cognitive science, computing and telecommunications comes at a time when more tertiary students than ever before must combine paid work (often shift-work) with study. Accordingly, those students following a curriculum with a high proportion of elective subjects will choose according to subject timetable as much as subject content. The 'twenty four hour day' (eg see Moore-Ede, 1993) and the discrimination against mature-aged students under admission policies has changed ways of devising how timetables can be organised with flexibility in mind. Instead of making sure that evening classes were offered in sufficient numbers to cater for students who were employed during the conventional working day, educational providers must now seek new ways to be flexible. In doing so they discover another convergence: self-paced learning, relaxation of pre-requisites, and the knowledge media.

Self-paced learning (spl) has long been an ideal for many educators, but its implementation is usually regarded as unnecessary for courses with tight pre-requisites. Moreover, because timetables/class-times are fixed, the ideal of spl is rarely achieved in conventional delivery mode. As the true nature of the Australian state-supported university emerged, during the last decade the principles of access and equity have been emphasised. In consequence, those servicing general (ie elective dominated) curricula as in Arts and Science are now faced with teaching classes with wider ranges of entry behaviour than before. Teaching with self-paced learning methods is therefore now more of a necessity than a virtue. Adoption of fdm and spl can be part of the transition of service delivery from cmd through mixed mode delivery to fdm and DE/OL.

The path to adoption

We describe the steps we have taken in the transition from 'conventional mode' towards Distance Education teaching for two subjects in the B.Sc(Env) course offered at the Monash Clayton campus.

The subjects are GES3820 (the fdm version of GES3810) and GES2160 (the fdm version of GES2150). What would be common to the process of re-organising the conventional mode delivery subjects to flexible mode delivery will be discussed in this section of the paper, and differences are discussed in the next.

The eight steps

1 - Monash support for fdm is compatible with the Monash Plan Monash University 1998).

Supporting investment had been targeted to facilitate linking of campuses and up-grading of already running Distance Education subjects. Other than that, Faculty budgets have not featured fdm support, although Faculty undergraduate teaching committees service applications for registration/approval of (new) fdm subjects. Thus the way is clear for any lecturer to put an fdm proposal to her/his HOD for passing on to the Faculty Committee.

During a 'trial period' shortly after Monash fdm policies were declared some notable fdm packaging teams have been funded under the CAUT initiative (URL 2). They developed high profile products supported by big budgets that included R & D components. They pointed the way to a second wave of fdm proposals such as the one here reporting the transition of GES2150 to GES2160, and GES3810 to GES3820.

The infra-structural support required for developing and delivering these subjects includes Monash access to the LAN and WAN, and access to the facilities of an IT lab .

In theory the University also supports IT training for staff. While this is at cost and regularly available, most subject lecturers are fully occupied with conventional delivery tasks and research student supervision, so conversion to fdm is unlikely to be undertaken without a supporting team.

Without the IT skill of the conversion team members who joined the senior author so that GES3810 and GES2150 could be offered in fdm, we would have nothing to report here.

2 - IT: choice and familiarisation

The most flexible delivery in terms of venues and schedules must be to have subject content on line/web-based, or on CD.

Problems emerge and solutions evolve continuously whatever choice is made. Whereas a few years ago no one would contemplate on-line offering of more than unadorned lecture notes or outlines unless programming support was available, many of the web-authoring packages available today allow the production of visually appealing sites which can incorporate graphics, sounds, video clips, and so forth.

Web master/ web authors

On the technical side, transferring a subject to fdm must be considered from two different perspectives - that of the user, the student, and that of the web author.

The needs and expectations of the site-user are paramount. Although not all students taking fdm are familiar with or frequent users of the internet, most have at least seen a web-site and thus have some expectations about the visual content of Web sites. Sites must also reflect the age-group/year level of the user, so that for example the site for a 1st year unit should differ in appearance from that for a post-graduate unit. Sites must be visually appealing, and user-friendly for even the novice web-user. To devise a site which looks 'up-to-date' requires the web author to also be up-to-date with web authoring software and technology. This involves continuous activity assessing new software (and upgrading if necessary), and learning new techniques so that effective site/product maintenance is achieved.

There have been several problems encountered during the time we have been offering fdm subjects:

Cost - time and money:

Devising web sites which are both useful and appealing requires both time and money. Software must be purchased and time spent on familiarisation. The sites themselves take time to produce. For the two subjects under discussion here, three programs are used extensively, and several others when needed.

Browsers: Many of the computers available on campus for student use have superseded web-browsers installed, which means that some web-site functionality is not supported. It is therefore necessary to devise sites accordingly. It is appreciated that the upgrading of many of these computers would be very costly.

Standardisation: Monash University is currently drafting an official policy on web page design, content, and etc. Such a policy is urgently needed for many reasons, not least of which is to save web authors many hours of work upgrading existing sites to conform with the policy when it is finalised. Standardisation of subject sites on a university basis is desirable, and would be much easier if all sites were produced by a Centre or Department established for that purpose.

Copyright: Web authors world-wide are struggling with this problem. An item on the WWW is considered as published, and so copyright laws apply to the reproduction of items already published in hard form, for example diagrams, charts, illustrations, etc. This means that all such items must be copied in the usual manner and given to the students in hard form, as is the case with conventional lectures.

One of the main challenges for the fdm team at first was to predict and allow for changes in software and operating systems.

3- Transfer of teaching content to fdm

i) lectures:

we considered that the full advantage of fdm teaching would accrue to students in a class of wide-ranging entry behaviour if the lecture content was presented with links ('hotwords') to an extensive glossary of terms/concepts, so that students could always follow the main argument of the lecture, even if they had to divert (usually for only a couple of minutes but maybe up to half an hour, or in a few cases, an hour or so) in order to follow up on matters that in earlier times of tighter prerequisites would be assumed knowledge. 130 glossary terms are offered in GES3810/3820 and 140 are offered in GES2150/2160.

For instance, this is a paragraph from one of the lectures from GES3820 (the context is thematic mapping with special reference to soils):

Part of the corresponding Glossary entry (reached via a link from the words Map scale) is as follows:

The link to the term Map Scale is provided for students who have not studied cartography. Those students who are familiar with the term need not use the link, but may still wish to do so to refresh their memories.

Problems encountered were in terms of equity access: the Monash gateway to the WWW was withdrawn from students using the Monash server, so the URLs referred to throughout the lecture notes as sites to visit for further information etc were no longer available to them. This was a particular problem for GES2150 because the many of the links were to sites which demonstrated working examples of problems/resolutions/research discussed in the lectures.

GES3820 practical sessions are designed to give students practice in handling digital spatial data. The data is prepared for handling with a particular software package (at present IDRISI for Windows, Clark University, 1998).

This software is not net-friendly and so practical exercises are accessed via cd.

Screen cams are provided so that students can concentrate on the conceptual aspects of the exercise rather than having to spend time specifically in learning to handle the Windows-based user-interface.

The problems faced by the team in preparing the practical work stem from software licence restrictions. The package must be bought by the student if off-campus use is desired.

The number of hours spent transferring subject content to fdm was approximately 100 hours per subject (unpaid) for web authoring, and about 200 hours for practicum (part paid).

4 - Developing new procedures for communication, assessment, and appraisal

i) Communication:

The Monash Computer Centre's automatic class distribution list generator was used to establish email contact with class members. Continuing contact is via email. Assignments are asked for as attached files.

ii) Assessment:

Comments about submitted work can be returned to students along with edited (using the W6 'revision' function) assignment text as attached files. The practical and written exams are opened up by password. Students have a set period in which to complete questions. The exams have to be by appointment until a 'home link' with digital camera image control so that an image of the examinee is automatically attached to the answer file for verification against the candidate file in the student database.

Ideally, students would then be able to set the exams when they were ready. In that case the questions would have to be randomly selected from a 'pool'. We have not yet agreed on the algorithm for meeting obvious exam requirements using such a pool, but we realise that questions would have to be linked in ways that precluded examination of the same topics in different questions.

iii) Appraisal:

Subject appraisal is by on-line questionnaire constructed in such a way as to preserve anonymity.

Problems encountered were as follows:

- the email distribution list can be updated, but not frequently; - many students with their own service providers were not well served: some even become impossible to maintain contact with except by phone. - most
- students preferred to submit their work as hard copy (in printed form): indeed some ignored the request that work be submitted as (email) attached files.

5 - Testing the market for fdm

Once a subject is on line it can be offered in all semesters. GES3820 was offered for the first time as a Summer School subject in 1997/8.

Cross-institutional enrolments dominated the class. In Semester 1, 1998, most students were officially full-time students, but in fact were working up to 20-30 hours a week (mostly evenings and/or weekends).

Semester 3 students included double degree students who had finished one degree, become employed and enrolled to finish their second degree as (official) part-time students.

6 - Testing marketability on other Monash campuses

No progress has been made. It appears that any effort in this direction is regarded as 'poaching' by those who can approve inclusion of our fdm subjects in their courses.

7 - Testing marketability outside Monash

For GES3280, as mentioned above, cross-institutional enrolments dominated the Summer School class. Cross-Faculty enrolments also featured.

Since then 'not-for-degree' enrolments (3) have emerged.

GES2160 was offered unofficially in 1997 and 1998 as a 'mixed-mode' alternative to conventional-mode delivery. About 1/3 of the class (enrolment was 63 students) found this very useful because the lecture timetable left them unable to attend more than half the lectures. This semester practicals were offered in conventional mode and as a week-end concentrated class. Next year (1999) GES2160 (fully trialed version) will be listed in the relevant faculty handbooks. Only then will the appeal of fdm of the subject be assessable.

Difficulties were encountered in gaining approval from the Faculty Education Committee because the definition of fdm is still evolving.

8 - Scope for migration to 'DE mode'.

GES3820 can be offered in DE mode now, but students would have to pay \$150 for the software.

Approximately 200 person/hours would be necessary to implement public domain software for the GES3820 practical work.

The main obstacles in the way of offering GES3820 in DE mode are: - Monash University is no longer a shareholder in Open Learning Australia, and so Monash offerings are being minimised/ eliminated. - Monash DE operations are based at the Gippsland campus around courses that do not involve Monash Clayton Faculty subjects/staff.

Summary of Institutional Constraints

Flexible delivery mode subjects offered at the Monash campus are not central to course structures, but are proving attractive to students looking for flexible timetables and 'own-pace' study. Some of these students are Summer School candidates. The Summer School tradition is not well established at Monash (Clayton) and no extra credit is given for teaching it. Clearly this will change, but in the meantime each individual staff member has to decide whether or not to test the market for fdm (including Summer School).

The same 'decentralised' approach may be seen in the establishment of network servers for on-line subjects. There is no explicit IT support for this and so, again, individuals must find their own solution. Again, this amounts to testing a way to go in ignorance of the nature of long-term institutional support. IT solutions can usually be found but may have to be found again if institutional IT policy and/or practice changes.

In summary, any individual staff member at Monash Clayton transferring subject content to fdm will be testing a market rather than meeting one already identified and institutionally targeted. Such members may find their efforts rejected on policy grounds or having to be re-formulated in conformity with yet-to-be announced guidelines. On the other hand, experiments such as the ones reported here can serve to illustrate some important directions for consideration by those charged with bringing the results of individual experiments to general practice (or not). From our experience with GES3820 and GES2160 we can report that each subject offers the same challenge in some ways and unique challenges in others. Some of the differences stem from the particular IT requirements, some of which involve proprietary software.

Student reaction

This has been gauged for GES3820 using an on-line assessment form. About half (n=40) the class members responded. The summary of responses reveals all but one as having enthusiasm and positive attitudes. The dissatisfied student calmed down after realising that the on-line notes should have been read week-by-week instead of during "swat-vac". This student is now enrolled for GES2160!

We have not yet appraised our web pages against an objective set of criteria (eg see Boshier and others, 1997).

The Future

Our working environment has changed steadily since Monash University first opened its doors in 1962. Pre-requisites have been relaxed, access and equity has been emphasised, the amount of knowledge that can be referred to has doubled, as has the needs of society to make use of it. The convergence of cognitive science, computer science and telecommunications has suddenly removed the 'tyranny of distance' so that conventional universities are now in competition with each other and other providers (eg the global open 'mega-universities') in a way hardly envisaged a few decades ago.

Universities will change because of this. At a time when every organisation must concentrate on what it does best, universities will promote what is unique about their role: assessment of teaching and learning on the one hand, and the teaching of research method on the other.

Education and training can be 'sold' as products, and products have to be marketed. With fdm teaching, students can still lead the traditional student life, but may choose to take a place (full- or part-time) in the work-force while being serviced in education and training by the institution offering the subjects delivered in a way most suitable for their needs.

It will be interesting to see how institutions respond to this new development. Under a Unified National System it should be possible for students to enrol in fdm subjects anywhere in Australia, in which case products that sell well will generate enough revenue to support product development and up-dating. Perhaps it is a case of 'grow or die'. Already some publishers have thrown out the challenge, offering web page support for text books, as well they might in that an on-line subject with hypertext/hotword links may supersede a text book. What will be the future of texts in that context?

In the face of this kind of challenge much effort could be spent in identifying markets for particular kinds of knowledge, and then 'packaging' the required content and treatment level. Texts that have been generalised in the interests of attracting a global readership may now be superseded.

With regard to the subjects we have transferred to fdm, it is clear that the unfunded effort involved cannot be maintained. We see merit in the University arranging access to a web-authoring facility in which staff are on-line, and familiar with not only web-authoring, but also with the subjects being transferred to fdm.

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