
Introduction

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The purpose of this booklet is to provide insights into the kind of issues which arise during the practical implementation of learning technology into a module or course. In the main, the kind of implementation discussed here relates to the use of existing packages. The development of packages through the use of authoring tools such as ToolBook and HyperCard was not part of the LTDI brief. Each of the case studies involved an LTDI consultant and one or more colleagues from Scottish higher education institutions.

In providing implementation support, LTDI works within a loose framework on instructional design but one which necessarily varies with each situation. Implementation support could often be described as a succession of tasks and decisions, usually forming an iterative process, but at worst resembling a jigsaw puzzle. Fortunately, even with the worst case scenario, no one so far has lost the picture!

Rationale

There have been almost as many reasons for embarking on the introduction of learning technology as there have been implementation projects undertaken by LTDI. However, the underlying rationale tends to concern the desire to improve the learning experience for students either by replacing one medium by another, or by offering an alternative medium. The perceived need for the introduction of learning technology has resulted from such things as:

- changes in staff-student ratios (more students, no more staff);
- changes in student profiles (students requiring flexible delivery);
- changes in student roles (encouraging independent learning);
- the arrival of software directed to meet the needs of higher education;
- communications media to enable students to learn at a distance or asynchronously;

- the availability of tools which can take over mechanical tasks and free up time for students to develop higher level skills (eg statistics packages which encourage the development of problem-solving skills whilst removing the tedium of calculation).

Aims and Objectives

Once a need has been identified, it is important to be clear about the purposes of the learning technology and what it is anticipated that the students will know, understand and/or be able to do as a result of using the proposed package. Once this is clear, it is possible to define objectives, the achievement of which will indicate progress on the part of the students.

Packages designed as tutorials will probably have their own in-built objectives. However, the profitable use by students of more open packages such as tools and databases will require staff to formulate objectives.

Assessment and Evaluation

Having defined the objectives, and having also considered what the students will bring with them to the package, the next stage is to establish the relationship between the learning technology and the other delivery media in use, to sequence the learning and decide on an appropriate form of assessment.

It is helpful during the planning stage to think ahead and to plan evaluation strategies which take into account the stated objectives. In any educational innovation it is important to monitor what happens as it happens and to evaluate the processes and the outcomes. As learning technology is still a comparatively new medium, for which few evaluative studies are available, it is even more so. Evaluation data will influence future implementations, both of the chosen package, and of additional packages adopted to meet new needs.

Institutional constraints

The processes summarised sound straightforward enough. However, they are inevitably complicated by the institutional constraints within which we all work. It is one thing to settle on an appropriate package and to find the necessary funding to buy it. It is

another to get it set up and maintained on your university network, to secure the use of an adequate number of appropriate machines at times which suit your students, and to get together the documentation to help students to get started.

Course considerations can also be a constraint. Changes in the form of delivery and in the assessment pattern cannot always be made without additional course documentation. Students might need support in the early stages of self-access activities, but there might not be enough financial resources available to provide support staff to meet this need.

Perhaps the single most important thread running through the processes involved in implementing learning technology is that of collaboration with departmental colleagues and fellow members of course teams. It might be possible to be a one-person learning technology band on a course which attracts few students. However, this is an unlikely situation for anyone to find themselves in today. It is much more likely that the introduction of learning technology will be a policy decision, involving several staff, some of whom will be all for it, the majority of whom will need to be convinced, and a small minority who will want to turn away. It is vital to get as many people as possible on board. There is great strength to be gained from a united approach and, in terms of the student learning experience, the implementation is likely to be seen as rather more than a 'take it or leave it' course component, to be taken seriously, and to have the desired outcomes.

Overview of the case studies

The eight case studies presented here have been selected because they each illustrate different types of implementation of learning technology. The first six case studies each describe integrating pieces of software into a course. Of these, case studies 1, 2 and 6 might be described as fairly typical examples of implementations of learning technology. Case study 4 presents an example of the important role that students can play in formative evaluation of software, and case study 5 emphasises the role for non-academic staff in disseminating information about learning technology. Although all the case studies have benefited from departmental support, 3 and 7 show two different departmental approaches to the introduction of learning technology across

the department. Case study 8 does not draw upon the integration of a particular package into teaching, but demonstrates how technology can be used to promote cross-institutional co-operation and collaboration.