

Internationalising the Curriculum - an e-Learning Case Study

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ABSTRACT

The case study examines some of the issues surrounding the delivery of a postgraduate programme in project management in construction within an international context. The programme is offered as distance-learning and is entirely delivered via the University of Salford's virtual learning environment. The present programme was launched in October 2001 and has recruited students a number of countries around the world.

Developing a curriculum for an e-learning postgraduate programme is a challenge. However, designing an e-curriculum for a programme that focuses on a highly vocational discipline and is also intended to be of value to students across the world is an even bigger challenge. The issues that have been addressed in the development of the programme are:

- E-pedagogy for a vocational discipline
- Structuring material to support international learners
- Accommodating the cultural diversity of learners
- Developing assessment for different application contexts

The case study will present an explanation of how these issues were addressed along with some of the debate that led to the final solution.

Keywords

Curriculum, e-learning, internationalising, project management

INTRODUCTION

This paper sets out the findings of a case study investigation into the design and establishment of a new postgraduate programme in the School of Construction and Property Management at the University of Salford. The new programme is a masters programme completely delivered through and supported by the University's virtual learning environment. It is a part-time two-year programme designed and offered as a distance-learning course.

The methodology used for the case study was to investigate certain issues in the programme development and delivery. These issues provide the main structure for this paper. The performance of the programme was benchmarked against other programmes within the School that are delivered in a more traditional way.

The programme, in its present form, began in 2000 and has now produced its first graduates. The investigations for this paper included discussions with students on the programme and those who have graduated. Interviews were held with staff involved in both the development of material and its delivery. These investigations identified a wide number of issues, some of which are not included in this paper.

HISTORY AND DEVELOPMENT OF THE PROGRAMME

Background of the programme and its themes

The programme was developed with the aid of a grant from the Engineering and Physical Sciences Research Council (EPSRC) under their Masters Training Programme. The content of the programme is central to the strategic plans of the School of Construction and Property Management and to the remit of the EPSRC as defined in the Programme Landscapes Document 1998-99. In particular, the programme has been framed within the Innovative Manufacture Initiative's Construction as a Manufacturing Process Programme (IMI -

CAMP). The programme is designed to improve quality and productivity throughout the whole construction process and to support cultural change towards performance improvement in construction and property management. The modules are imbued with a business process approach and set within a construction process framework derived from the widely acclaimed Salford IMI-CAMP supported project – The Generic Design and Construction Process Protocol. The programme meets the managerial needs of the participants in a changing industry. It addresses the management of construction and facility projects with emphasis on the project life cycle and their underlying processes. Each of the modules will address the advances in IT as an enabler to the management role. The emphasis on both process and IT as an enabler will be balanced by an equal concern with people and team management.

In 2000, the construction sector in the United Kingdom employed around 1.4 million people with an output of approximately £5.8 billion, representing about 10% of gross domestic product (GDP). The Government, industry and clients are seeking to bring about change in the processes of construction to improve quality, competitiveness and profitability and to increase value to clients. Implementation is through initiatives such as Constructing Excellence, (CE), the Government Construction Clients Panel (GCCP), and the activities of the Construction Industry Council (CIC), the Confederation of Construction Clients (CCC), the Construction Round Table (CRT) and the other umbrella organisations.

As a result of these pressures and initiatives, the management of construction projects in the construction industry is now being influenced by the so-called *lean, agile, effective and flexible production systems* from other manufacturing sectors. For real productivity gains to be achieved improvements in process are seen as a pre-requisite; this needs a concentration on the elimination of resource wastage by eliminating non-value adding activities and improving the efficiency of value adding activities.

In calling for radical changes in processes four key elements of an integrated project process - product development, project implementation, partnering the supply chain, and production of components were identified. Lean thinking was identified as a powerful and coherent synthesis of the most effective techniques of eliminating waste and improving industrial performance. How the proposed programmes cover these issues and subjects is detailed below. The programme addresses three of the four key elements (ie those that are associated with management). Table 1 shows how the modules meet the needs identified by Egan (1998) by mapping the modules on to the three management “key elements of the integrated project process”. Egan (1998) identified specific training needs at the project manager level for training in integrating projects and leading performance improvement (from conception to final delivery) and for designers to develop greater understanding of how they can contribute value in the project process and the supply chain.

The background of the programme is clearly aligned to UK Government policy initiatives. However, the rest of the world is also looking at construction processes and looking to take a lead from developments in the UK. This has led to interest in the programme from overseas students, specifically interested in the themes of people, process and technology. Current initiatives worldwide are seeking to secure a culture of co-operation, teamwork, and continuous improvement in the performance of the industry. Clients and governments are still calling for change in the traditionally fragmented construction industry. Integration of the disparate business organisations (contractors, trade contractors, architects, engineers, suppliers etc.) and the design and construction processes requires effective management. The development of the role of the manager in construction and property has traditionally followed that in other industries, and is continuing to do so. Where the emphasis has been on the need to manage the interface between the project and the client's organisation, it is now shifting towards the need to manage the flow of activities through the whole life cycle of the project, concentrating on those activities that actually add-value.

Table 1: The taught modules mapped on to the Egan key elements of an integrated project process

Key element	Module
Product Development	Integrated Design and Production Process and Project Systems Corporate Strategy
Project Implementation	Culture and People Lean and Agile Operations Information and Communication Performance Improvement
Partnering the Supply Chain	Strategic Procurement and Supply Chains Procurement Logistics

Structure of the programme

The curriculum is designed to provide a progressive framework for students with different entry profiles to be brought to a consistent level of attainment on completion of a programme. The curriculum is organised into four main areas – theory, strategy, implementation and reflection. In a typical arrangement, theory comes first and provides the foundation for other studies. Understanding and developing strategies follows on from the theory and by addressing issues associated with the implementation, theory is taken into practice. Finally, in an industrially-based project, students reflect on their studies by looking at a particular aspect of the subject in depth. A dissertation route exists within the programme, but this is not recommended and no students have taken this option. The basic arrangement of the programme is shown in fig. 1.

E-PEDAGOGY FOR A VOCATIONAL DISCIPLINE

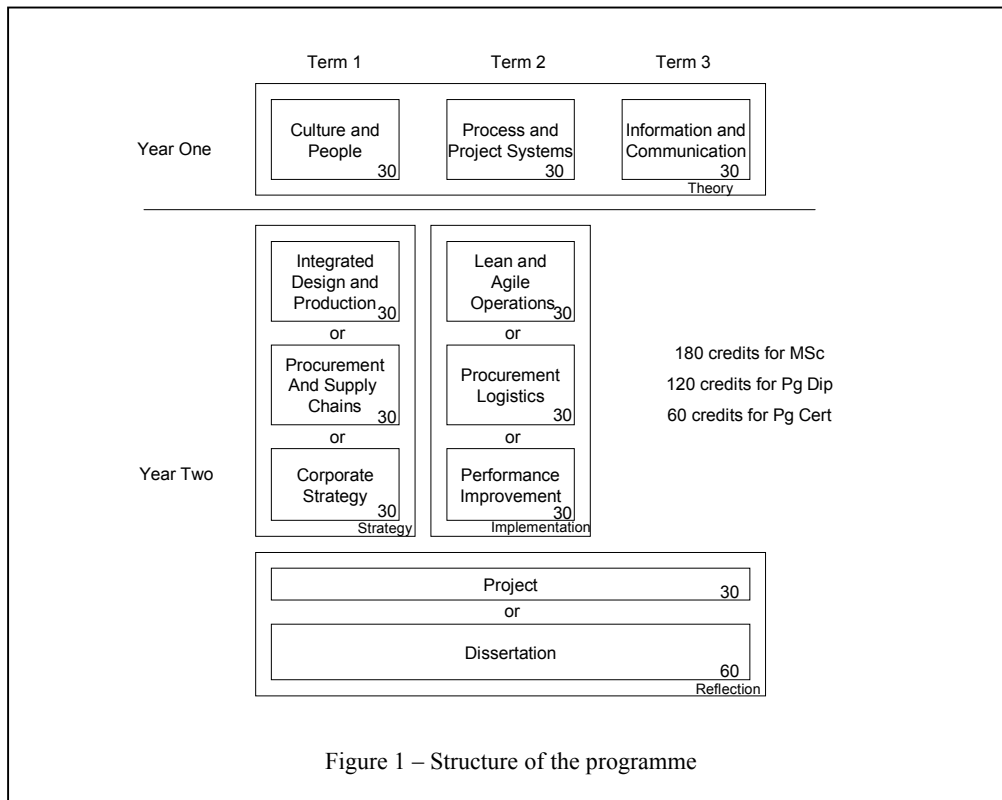
E-learning strategy

The programme has an e-learning strategy and is delivered through and supported by the Blackboard virtual learning environment (VLE) software (Smith 2000). The intention was to create and structure material in a flexible way that allows students with different learning styles to study in a way that best suits them and is interesting and challenging (Peters, 2001).

The basic teaching and learning strategy for the programme follows a ‘tell me’, ‘show me’, ‘let me have a go’ and ‘let me reflect’. It is used to structure the material into programmes of reading, studying cases and problem-solving. All these programmes are supported by reflective exercises that allow students to assess their development.

The basic learning strategy is developed for e-learning by adopting the following principles (following Gromov 1998, Shapira & Youtie 2001):

1. High quality integrated module information that combines a variety of types of information supporting the learning objectives of the module.
2. Internet based communication and submission of assessed work.
3. On-line tutorial support during module delivery



Module delivery

Modules are normally studied in succession with each taught module having duration of 12 weeks. Each module is sub-divided into learning packages with a typical duration of 2 weeks. Therefore, there are 6 learning packages in each taught module and each module attracts 30 credits at M (masters) level.

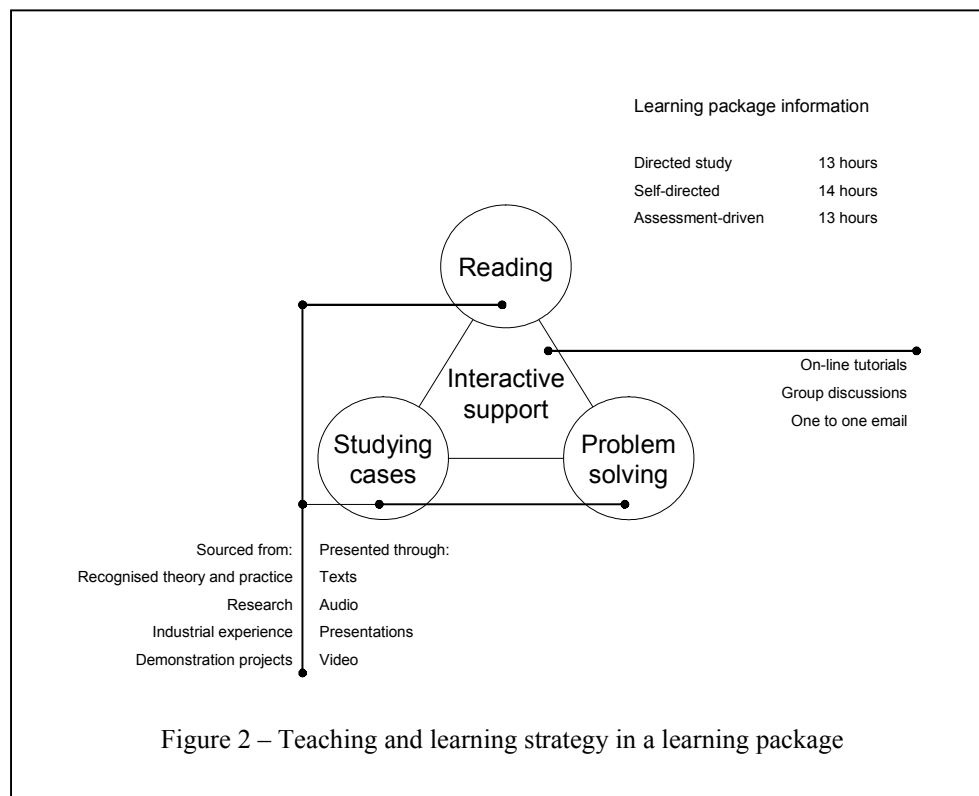
Material to support study in a module is accessed via the VLE. In exceptional cases material may be provided to students on a CD-Rom. This will be done where the download time for accessing material via the Internet is too long. Text material may be downloaded by students for study off-line. The material to support the learning packages is organised as shown in (see fig. 2).

The pedagogical aspect of the programme has proved to be very successful. Tutors have found the programme a challenging and rewarding experience. Students have been surprised with the ease with which they have been able to study and the convenience of 24/7 access to information. Student performance on the programme indicates that they are being successful. The proportion of distinction grade outcomes and the retention rate are higher than other course in the School.

The use of the Internet for communications and submission of assessed coursework has proved reasonably reliable. However, there have been the usual minor technical problems associated with the use of a new piece of software, but these have not, in the view of the students, detracted from the value of the programme. Blackboard was chosen as the VLE for two reasons: it is considered to be the most tutor-friendly VLE currently available, and it operates with a basic specification of computer and connection to the Internet. The latter issue was particularly significant as some of the students are based in countries where the information and communication technology (ICT) infrastructure is less well-developed.

STRUCTURING MATERIAL FOR INTERNATIONAL LEARNERS

Learning package material



Each learning package has three components – reading, studying cases and problem solving. There will also be an introductory presentation for each learning package. The expectation is that students will work through the material in a logical order, working from reading to case studies and then to problems. However, some students prefer to study in a different way that more suits their learning style. The material will provide alternative study routes for those who choose a different approach to the study. The intention is that all learning material is accessible to students of differing learning styles and accessible to students with differing disabilities. (This is in response to a new act the Special Educational Needs and Disability act that will come into force in 2003.) The flexibility in approaching the material is shown by the matrix in fig.3.

The arrangement of the material and its delivery is an important aspect of learning. Another is how students are motivated to learn. This is a complex issue and is context specific. The key principle employed in the design of the programme was that all learning should be capable of being applied in the student's own workplace. The reason for this is twofold:

- If the ideas and concepts can be transferred and applied in the country in which the student is working, it will demonstrate relevance to the study. This is an attempt to deal with the most frequently asked question by students on part-time courses in vocational disciplines – ‘why am I doing this, it is not relevant?’ The design of the assessment specifically challenges students to apply the new knowledge to their workplace (see also in later section).
- If the material being studied is capable of being interpreted from the perspective of any country, it will demonstrate the universal nature of the curriculum and subject matter.

The development of material was undertaken with these two guiding principles in mind. All modules, therefore, embody this global approach. This did not mean that UK perspectives could not be included in the material, but only that when they were, there were used as illustrations of the application of knowledge. Students were challenged to use the UK perspective as a base from which to reflect on their own experiences. While this placed certain restrictions on the way material could be sourced and used. Tutors met the challenge and many reported that they enjoyed the wider debate about different approaches around the world.

ACCOMMODATING THE CULTURAL DIVERSITY OF LEARNERS

The main issues that were considered in the development and delivery of the programme were cultural diversity arising out of:

- Ethnic preference amongst groups of learners

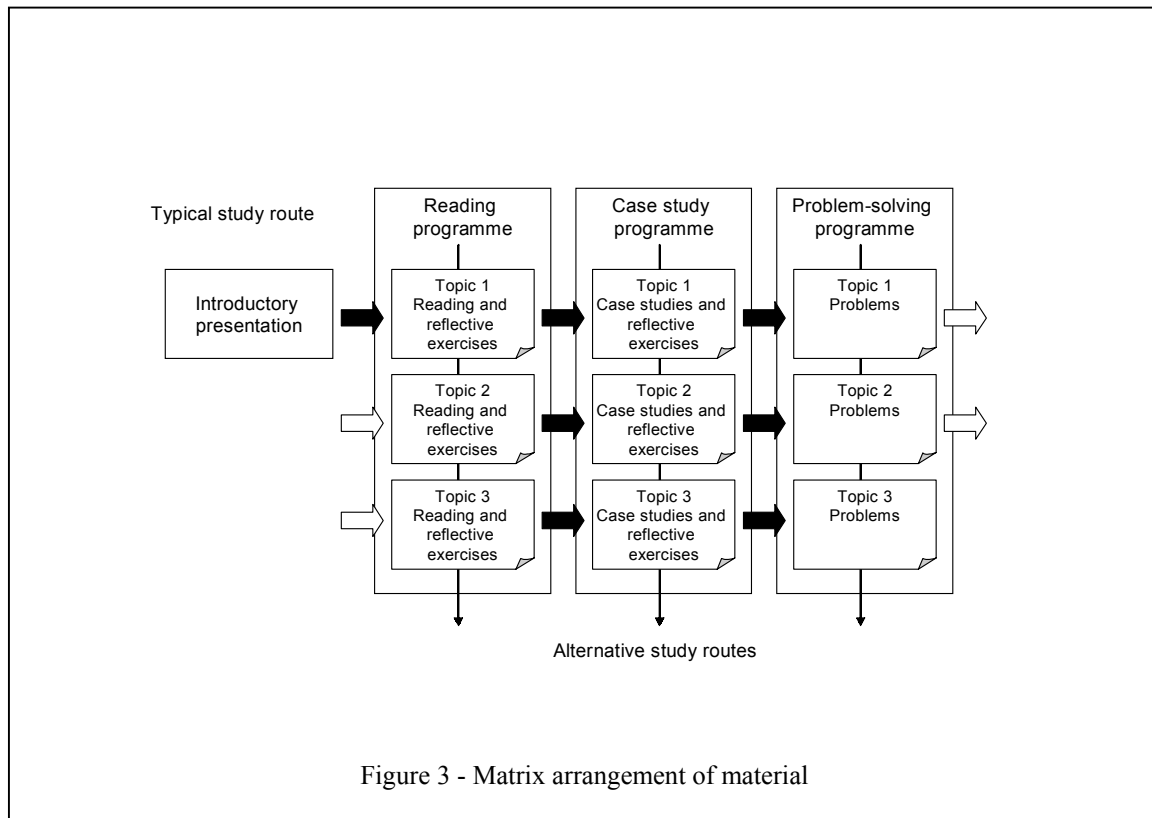


Figure 3 - Matrix arrangement of material

- Geographical locations of the workplace
- Language

Ethnic preference amongst groups of learners

Societies across the world have developed at different rates and in different ways. This means that the norms and values of those societies will also vary, leading to distinct styles of education to support them. This is not a negative, but is a positive that demonstrates the rich diversity that is modern civilisation. Some ethnic groupings are happy approaching problems from a basis of some understanding and employing analysis to solve problems – typically a western approach. Others are more comfortable with learning by rote – more typical, but not exclusively, of oriental societies.

The flexible arrangement of learning material described in an earlier section is extremely useful in this respect. It allows students to approach the material from whichever aspect they feel most comfortable. If they prefer to be told first then look at applications, they would start with the reading programme and move on to look at cases. If they prefer to look at life as a series of challenges, then they would start with the problems part of the material, only dipping into the other material when it was useful in developing solutions.

The feedback from students supports the view that the structure of the material does indeed support a flexible approach. It is clear that students are finding their own unique way through their learning.

Geographical locations of the workplace

Ethnic culture is one thing, but some of the students who are of a particular ethnic background find themselves working in a fundamentally different cultural workplace. Examples would include UK citizens working in China and the Middle East, Sri-Lankans working in Saudi Arabia, Africans working in Turkey to name only a few. Here the problem is different. There is nothing a course designer can do in developing and organising the

material to deal with the possible permutations, so here course designer and student must work together. What unites all the students is that wherever they are, they are all working in project management in construction. The programme design challenges students to look at their work environment in a different way and wherever possible to share this with other students. This allows them to develop a broader more valuable perspective of their work.

Evidence from the discussions with students clearly suggests this is one of the most valuable aspects of the programme. The opportunity to discuss similar problems with people in Korea, Vietnam and Jamaica for example, and more importantly to debate different solutions, is cited by students as one the most enjoyable activities they engage in.

Language

This is the one area where no amount of careful course design or delivery strategies will help. Clearly, students would prefer to study in their own language, but UK universities insist that submission of work for their awards must be in English. In reality, only those students with demonstrable skills in English register on the programme and, generally speaking, from then on they do not encounter too many problems. The bigger issue is how many students who would like to enrol are not getting a chance to because of a deficiency in language skills? In truth, this is an unknown, but anecdotal evidence is that this group is much bigger than those who do make it onto the programme.

DEVELOPING ASSESSMENT FOR DIFFERENT APPLICATION CONTEXTS

Nature of assessment at masters level

The programme is organised so that each module has a single project as its summative assessment. This project is submitted after the taught period for the module. The nature of this project is that it is a major piece of work, typically requiring a report for senior management, and aimed at demonstrating the value of the students learning to themselves and to their employers. The project will often have series of parts that encourage the student to start work on the project as soon as the module is started. It becomes a driver for the learning process and an additional source of motivation for students. Tutors generally use the project as a focus for the on-line tutorials and students use discussion boards to leave each other questions and answers to issues they identify as they develop their reports. Students may submit draft projects for tutor review at any time up to the deadline for submission. This provides an additional means of formative assessment.

Students have found this approach extremely useful. While they come from diverse cultural backgrounds, the project gives them all an equal opportunity to demonstrate their learning in the country where they work and in the context of their own workplace. This approach has been very successful.

Issues surrounding distance learning (authorship, plagiarism)

This issue is perceived as an increasing problem, particular for distance-learning programmes. Some courses have attempted to deal with it by making some component of the assessment require attendance at university with proof of identity. In the project management programme there is no compulsory attendance, but there is an option of a *viva voce* examination of the project module. This is intended as a safeguard that can be used if there is any doubt about authorship of the work submitted.

In reality, given that the projects for all modules have to be highly integrated into the workplace of the student, the only real opportunity for plagiarism arises when more than one student are from the same employment. This situation has arisen, but there have been no attempted plagiarisms and no one has been called for a *viva*.

FINDINGS AND CONCLUSIONS

Internationalising the curriculum is an increasingly important issue as the development of the Internet makes programmes in any country more readily available in other countries (Daniel, 1996). True internationalism may not be achievable, but this case study highlights some of the issues that if carefully addressed will increase the international appeal of a programme. In summary they are:

- Ensure that the pedagogy is supportive of students from different countries and recognises their different needs

- Try to develop learning material so that it can be accessed in a flexible way, leaving students to determine their own preferred learning style
- Develop material that is easily transferred to other situations. If you use UK specific contexts make sure you challenge students to reflect on their own situation.
- Make sure that assessment is properly integrated into the student's workplace, this will increase motivation, promote the development of a better perspective of the issues and reduce the incidence of problems with authorship.

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