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Enhancing practice

Quality Enhancement Themes: The First Year Experience

Curriculum design for the first year

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Quality Enhancement Themes: The First Year Experience

Curriculum design for the first year

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Preface

The approach to quality and standards in higher education (HE) in Scotland is enhancement led and learner centred. It was developed through a partnership of the Scottish Funding Council (SFC), Universities Scotland, the National Union of Students in Scotland (NUS Scotland) and the Quality Assurance Agency for Higher Education (QAA) Scotland. The Higher Education Academy has also joined that partnership. The Enhancement Themes are a key element of a five-part framework, which has been designed to provide an integrated approach to quality assurance and enhancement. The Enhancement Themes support learners and staff at all levels in enhancing higher education in Scotland; they draw on developing innovative practice within the UK and internationally.

The five elements of the framework are:

- a comprehensive programme of subject-level reviews undertaken by higher education institutions (HEIs) themselves; guidance is published by the SFC (www.sfc.ac.uk)
- enhancement-led institutional review (ELIR), run by QAA Scotland (www.qaa.ac.uk/reviews/ELIR)
- improved forms of public information about quality; guidance is provided by the SFC (www.sfc.ac.uk)
- a greater voice for students in institutional quality systems, supported by a national development service - student participation in quality scotland (sparqs) (www.sparqs.org.uk)
- a national programme of Enhancement Themes aimed at developing and sharing good practice to enhance the student learning experience, facilitated by QAA Scotland (www.enhancementthemes.ac.uk).

The topics for the Enhancement Themes are identified through consultation with the sector and implemented by steering committees whose members are drawn from the sector and the student body. The steering committees have the task of establishing a programme of development activities, which draw on national and international good practice. Publications emerging from each Theme are intended to provide important reference points for HEIs in the ongoing strategic enhancement of their teaching and learning provision. Full details of each Theme, its steering committee, the range of research and development activities as well as the outcomes are published on the Enhancement Themes website (www.enhancementthemes.ac.uk).

To further support the implementation and embedding of a quality enhancement culture within the sector - including taking forward the outcomes of the Enhancement Themes - an overarching committee, the Scottish Higher Education Enhancement Committee (SHEEC), chaired by Professor Kenneth Miller, Vice-Principal, University of Strathclyde, has the important dual role of supporting the overall approach of the Enhancement Themes, including the five-year rolling plan, as well as institutional enhancement strategies and management of quality. SHEEC, working with the individual topic-based Enhancement Themes' steering committees, will continue to provide a powerful vehicle for progressing the enhancement-led approach to quality and standards in Scottish higher education.



Norman Sharp
Director, QAA Scotland

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I Executive summary

This report outlines the work and outcomes of a practice-focused development project 'Curriculum design for the first year'. The project was one of nine funded by the Quality Assurance Agency for Higher Education (QAA) under the First-Year Experience Enhancement Theme of the Scottish quality enhancement agenda.

The stages of this curriculum design project included: completing a literature review; running staff workshops to gather and disseminate information; holding student focus groups to gather students, views and experiences of the curriculum; collecting case studies of interest to the sector; and reporting findings to the sector.

Key findings from the literature are presented in this report. They include the need to adopt student-centred active learning strategies (Harvey, Drew and Smith, 2006; Oliver-Hoyo and Allen, 2005; Barefoot, 2002) and the importance of providing early formative feedback to students (Davidson and Young, 2005; Barefoot, 2002). Many suggestions for improving learning and teaching strategies have been adopted at module level, but could be implemented strategically across the breadth of a programme curriculum. Kift and Nelson (2005) supported this view and argued that it is equally important to support these principles with systemic university-wide change, including administrative and support programmes that are also integrated with the curriculum and student needs.

In synthesising the literature, an 'ideal' curriculum design process appears to be described, if not rigorously evaluated. Students, graduates and employers should be consulted to inform the overall programme aim and to identify students' abilities on entry. A 'bird's-eye' view is advocated where discipline-specific and transferable knowledge and skills are developed within and across modules or units. Current pedagogical principles should be used developmentally to facilitate a progression of learning over the first year in particular and throughout the course. The success of this as an overall strategy should be evaluated in relation to student engagement and empowerment. However, most academics are overwhelmed by the different agendas being promoted in higher education (HE), and may lack the time, confidence and support to initiate change within current HE infrastructures (McGoldrick, 2002; Oliver, 2002).

At the workshops, staff expressed their views of what an ideal first-year curriculum would look like. Many staff agreed that taking a coordinated programme-level approach was important. First-year curricula that incorporate small-group work and the use of problem-based learning (PBL) were favoured, as was a commitment to offering early formative feedback to students. Other important elements of an ideal first-year curriculum included maximising student choice, for example through involving students in curriculum design, and clear communication between staff and students about all elements of the curriculum, which was thought to be key.

It was also suggested at the workshops that the most experienced staff should be teaching first-year students, as this is a critical stage in their university experience where

student engagement can be fostered. Opportunities should be created for students to have personal contact with staff in their first year. Many staff also emphasised the importance of ensuring that the first-year curriculum enabled students to enjoy their learning experience.

These ideal elements of the curriculum described by staff largely overlapped with the literature, and there were many references to the areas covered by all the practice-focused development projects funded by QAA under the First-Year Experience Enhancement Theme (see Appendix 4 for full list). Interestingly, peer support, personal development planning and enjoyment, which were all mentioned by staff, did not feature so highly in the literature.

Within the three student focus groups, students made many comments about aspects of university life outside the curriculum. However, in relation to the curriculum, they made many comments about their desire to receive quicker feedback on assessed work. Two key points were made in these focus groups. One was the need for more challenging work in the first year. Many students did not feel stretched by the first-year curriculum they had experienced, and described going backwards from the demands of school. The second key point was that students reported not being involved at all in curriculum design other than feeding back on module or programme evaluation forms. Where end-of-course evaluation is carried out, students often have no way of knowing whether their feedback influences curriculum design, and changes are most often made for the benefit of following cohorts of students. However, students reported their interest in being involved more closely in timetabling aspects of the curriculum.

The eight full case studies presented here are from six Scottish universities (Edinburgh, Napier, Queen Margaret, Robert Gordon, Stirling and Strathclyde), one Irish institution (University College, Dublin) and one American institution (Elon University, North Carolina). The case studies cover the following disciplines: Biological and Environmental Science, Biology, Computing and Mathematics, Education, Environmental Justice, Geography, Mechanical Engineering, Nursing, Philosophy and Physics.

The key issues raised within the case studies are presented in sections that explore: an overview of the nature of the case studies; the rationale for curriculum redesign; student engagement; student empowerment; student involvement in curriculum design; evaluation of changes to curriculum design; useful lessons for others in the HE sector; factors that facilitated the progress of the work; barriers to progress; and dissemination of case study examples.

In exploring ideas of ideal first-year curriculum design from the literature, staff workshops, student focus groups and case studies from the HE sector, we found a number of overlapping views. All of the sources agreed that early and regular feedback was a critical element in first-year curriculum design. There was also agreement that students should be participants in curriculum design (staff, students and case studies). Although this was not strongly stated in the specific literature on first-year curriculum design, students and staff co-creating the curriculum was a message found within more general literature on the curriculum (see, for example, Barnett and Coate, 2005; Breen and Littlejohn, 2000).

Other sources of agreement centred on the importance of adopting active learning and PBL approaches (literature, staff and case studies). Finally, there was also some agreement that the use of learning communities could be helpful in the first-year curriculum for enhancing transferable skills and a sense of belonging (literature and case studies).

Many issues were raised in the information gathered from the literature, staff workshops, student focus groups and case studies, and the complexity of first-year curriculum design and the breadth of the data collected makes giving simple messages almost impossible. However, a number of key themes were discussed. They included: the importance of active learning approaches in the first-year curriculum; the importance of student involvement in curriculum design; the paucity of rigorous evaluation and research into the first-year curriculum; and the need for specific research into the structure of the first-year curriculum.

Thorough root and branch redesign was considered to be the favoured approach to changing a first-year programme curriculum. However, this would be a significant undertaking requiring support across a discipline and institution for substantial redesign changes to be undertaken and sustained. In less than optimal circumstances, it may be more pragmatic to suggest selecting several of the key issues identified in table 1 (page 10) or within the recommendations contained in this report (section 8) and try to embed these within a module initially before tackling issues at programme level. However, comprehensive change of a first-year curriculum is likely to have more dramatic effects on student engagement and empowerment, as demonstrated in some of the case studies presented here.

A strong note of caution is needed regarding the paucity of rigorous research and evaluation into first-year curriculum design. Many debates are taking place anecdotally about which particular approaches to the first-year experience are desirable, but there is little research to back many of these views. It is with this caution in mind that we suggest recommendations.

Key recommendations for managers and policy-makers

Staff need support in the form of:

- dedicated time for curriculum redesign; involving students often takes longer than more traditional models of staff-driven curriculum design
- strong institutional messages to raise the status of the first-year experience
- institutional structures that reward positive examples of curricular change
- resources for further evaluation and research into first-year curriculum design.

Key recommendations for academics and practitioners

There is a need for:

- a comprehensive approach to first-year programme curriculum design
- pragmatism: where the context makes it difficult to take a comprehensive approach to curriculum design, it is suggested that individuals or programme teams could select several of the key elements identified in table 1 (page 10) or from the case studies in Appendices 2 and 3, and start by making changes in these areas
- commitment to first-year students being co-designers of their own learning
- further evaluation and research of first-year curriculum design, including student involvement.

Key recommendations for students

There is a need for students to:

- become partners in curriculum design by communicating ideas to tutors and feeding back on experiences
- be able to influence their curriculum and not always that of students in following years
- ask staff for the opportunity to become more involved in the design of their own learning
- become more aware of student participation in quality scotland (sparqs) and other bodies committed to supporting student participation.

2 Introduction

This report outlines the work and outcomes of a practice-focused development project on 'Curriculum design for the first year'. It was one of nine projects funded by QAA under the First-Year Experience Enhancement Theme of the Scottish quality enhancement agenda.

The Enhancement Theme focused almost exclusively on the first year of undergraduate programmes, although it is acknowledged that some of the findings may also be relevant to the first year of postgraduate programmes. The aim of this project was to investigate the relationship between curriculum design and student engagement and empowerment, which may be viewed from two perspectives. On the one hand, curriculum design may encourage and enhance student engagement and empowerment; on the other hand, the process of curriculum design might be developed by engaging and involving students.

The report firstly presents the context and process of the project. Key findings from the first-year curriculum design literature review are then presented. This is followed by key themes emerging from staff workshops, student focus groups and case studies of first-year curriculum design, which highlight interesting work being undertaken by practitioners from the HE sector in Scotland, Ireland and the US. Finally, we discuss some of the common issues emerging from the literature and practice, before presenting conclusions and recommendations. The report also includes appendices detailing the literature review and case studies.

3 Background and the project process

The Scottish quality enhancement agenda includes the promotion of a number of Enhancement Themes. Many of the previous Enhancement Themes have reported on their work in documents and resources useful to the HE sector. Within the Enhancement Theme of the First-Year Experience, QAA Scotland commissioned nine projects to work on different important areas of the first-year experience. Seven of these projects used a similar approach: completing a literature review, holding workshops to gather and disseminate information, collecting case studies of interest to the sector, and reporting findings to the sector. This report constitutes part of the dissemination process for the curriculum design project's findings.

The full literature review for the curriculum design project can be found in Appendix 1. Workshops were held to gather information and disseminate early findings: two at the Scottish Annual Enhancement Themes Conference in March 2007, and one at the Staff and Educational Development Association (SEDA) Conference in May 2007.

From the end of 2006 through to June 2007, case studies were collected of interesting work that practitioners were doing to engage students in, and through, curriculum design. Emails asking for examples were sent to the following: key institutional contacts with a remit for first-year work within each of the Scottish universities; the QAA register of first-year practitioners; Higher Education Academy (HEA) subject centres; and specific individuals with an interest in first-year curriculum design. This was not a comprehensive gathering of examples, but was realistic within the project timeframe. In total, we gathered information for 25 case studies. Eight of these were selected to be included as full case studies in this report on the basis of their transferability to other settings, the level of student engagement fostered, their level of interest to the sector, and whether the work had been evaluated. Five others that also contain interesting features of curriculum design are included in Appendix 3 as short case studies.

Although not a mandatory part of the project remit, the project team was concerned to ensure that students' views were investigated. In an attempt to hear more about student involvement and engagement in and through curriculum design, three focus groups were held with students at Queen Margaret University (QMU). In addition, all of the practitioners submitting case studies were asked explicitly about student engagement, empowerment and involvement.

Therefore, the themes outlined in the following sections come from the literature, staff workshops, student focus groups and case studies.

4 Key findings from the literature

A literature review was completed in February 2007. The main findings are presented briefly here; the full review is available in Appendix 1. Since the focus of the literature review was on first-year curriculum design and the links to student engagement and empowerment, it was essential to establish terms of reference for those three components of the study: student engagement, student empowerment and the curriculum.

A recent briefing paper described student engagement in terms of 'attitude and commitment to study' (Piper, 2006, p 1). This is supported by staff who associate student engagement with behaviours (for example attending, actively participating, doing work out of class, interacting with peers) and attitudes (for example motivated, enthusiastic, sharing responsibility for learning) (Solomides and Martin, 2005).

Empowerment suggests learners taking control of their own learning (Piper, 2006). Interestingly, the attributes that may enable them to do so have been closely associated with employability - that is transferable skills, intellectual qualities, personal characteristics and career orientation (Helsby, 2002) - and are those attributes that many programmes seek to develop in their students.

Curriculum is defined in quite different ways by different stakeholders. Fraser and Bosanquet (2006) explored definitions proposed by academic staff. Their analysis suggested four categories of conceptualising the curriculum: structure and content of a unit or subject; structure and content of a programme; learning experiences; and a dynamic interaction and collaboration between student and teacher. Within the literature there were examples of authors referring to the first two of these definitions, but less reference to the latter two.

The literature review focused on these key themes rather than on more numerous learning, teaching and assessment strategies, which were addressed in other associated projects. Literature identified through the rigorous search strategy was broadly divided into three main areas: curriculum design that aims to engage or empower students at module level; curriculum design that aims to engage or empower students at programme level; and the involvement of students in the process of curriculum design.

The majority of papers addressed curriculum design at modular level, using strategies to improve transition to HE, develop learning strategies, build social networks and increase identification with the discipline and the institution. Several examples or case studies were located (Beder, 1997; Mitchell et al, 2002; Oliver-Hoyo and Allen, 2005; Orwin and Bennett, 2002). Oliver-Hoyo and Allen (2005) also incorporated an evaluation within their study and reported using workshops preceding the first academic year and orientation modules on entry. Two further studies explored academics' views on innovative curriculum design and found similar examples, as well as emphasis on the value of student-centred active learning strategies and the provision of early formative feedback to students (McGoldrick, 2002; Oliver, 2002). Many learning and teaching strategies are implemented at module level but could be implemented strategically across the breadth of a programme, which makes them highly relevant to programme curriculum design.

Literature relating to curriculum design at programme level was limited. Several projects/authors advocated the strategic use of learning, teaching and assessment strategies to increase integration, independence and collaboration among students (Helsby, 2002, *Skills Plus* Beder, 1997; Lines, 2005). Kift and Nelson (2005) acknowledged the importance of redesigning curricula in line with current pedagogical principles. However, they also argued that it is equally important to support these principles with systemic university-wide change, including administrative and support programmes that are also integrated with the curriculum and student needs. They set out six principles of curriculum renewal to enhance student engagement: engaging learning environments; long-term strategies for programme development rather than piecemeal modification; taking account of student needs; cumulatively developing skills required on graduation; facilitating reflection, independence and self-management; and aligning curriculum, administrative and support services to ensure an institution-wide approach.

The literature contained very few instances of students being involved in curriculum design; the only two examples were from the United States (Lundstrom, Mariappan and Berry, 1996; Auerbach, 1992). More frequently, stakeholders from industry were consulted. Where students were involved, they tended to be consulted at the redesign stage (Oliver, 2002). In UK universities, student evaluation at module and course/programme level is common practice. It is an expectation that periodic programme reviews and revisions to curricula will take account of and respond to this feedback. However, the relationship between student evaluation and curriculum design is, unfortunately, poorly documented in the literature. Furthermore, students are often unaware of any impact their views may have over changes to the curriculum. A more satisfactory means of 'closing the loop' may be to offer ongoing opportunities for student feedback by incorporating evaluation into the curriculum and learning and teaching activities (Davidson and Young, 2005). Participatory action research may provide the ideal mechanism for serious student involvement in evaluation and design processes, while also empowering students (Bovill et al, forthcoming; Carr and Kemmis, 1986; Moore, 2004).

Oliver (2002) also reported that some academic staff were concerned that first-year students may not be knowledgeable enough about the whole first-year programme to be able to contribute meaningfully to curriculum design. Views of whether students should be involved in curriculum design vary and are likely to be linked to how individuals define curriculum. For those adopting Fraser and Bosanquet's (2006) definition of curriculum as a 'dynamic interaction and collaboration between student and teacher', student involvement is likely to be emphasised. Fraser and Bosanquet implied that reducing specific documented structures and content provides more room for involving and collaborating with students in their learning, leading to greater engagement and empowerment.

There are many examples of interesting work involving first-year curriculum design and suggestions of possible approaches to adopt, but many have advocated change without evidence for success in practice. Although there have been some large and robust surveys relating to student engagement, most of the curriculum design literature is comprised of discussions and opinions, describing changes that have been implemented without evaluation. This leads to a 'danger of building a "massive but trivial literature"' (McInnes, 2001, p 112). Another concern is that many of these studies were contextually specific, with substantial differences compared to the contexts in other disciplines and institutions.

Therefore, many of the findings need to be treated with care. More robust research and evaluation of first-year curriculum design is needed if academic staff and managers are to be convinced of the need to implement change in their discipline or institution.

Following synthesis of the literature, an 'ideal' curriculum design process has been described (Appendix 1, p 37). Students, graduates and employers should be consulted to inform the overall programme aim and to identify students' abilities on entry. A 'bird's-eye' view is advocated where discipline-specific and transferable knowledge and skills are developed within and across modules or units. Current pedagogical principles should be used developmentally to facilitate a progression of learning over the first year in particular and throughout the course. The success of this as an overall strategy should be evaluated in relation to student engagement and empowerment. The key elements of 'ideal' first-year curriculum design outlined in the literature are summarised in table 1.

Key features of an 'ideal' first-year curriculum from the literature:

- orientation of students to increase social and academic engagement, 'connectedness' to university, sense of direction and future career (Beder, 1997)
- development of learning skills (Lines, 2005; Harvey, Drew and Smith, 2006)
- student-centred, active learning through problem-based, project-based and group learning (Beder, 1997; Harvey, Drew and Smith, 2006)
- collaborative learning or learning communities to enhance transferable skills and lend a sense of belonging (Barefoot, 2002; Lines, 2005)
- formative assessment and feedback (Yorke, 2003; Nicol and Macfarlane-Dick, 2006)
- progressive skills development (Jantzi and Austin, 2005)
- time and structures for reflecting on learning (Jantzi and Austin, 2005).

Table 1: key features of an 'ideal' first-year curriculum from the literature

While many of these ideas have appeal for academics, there are many internal and external barriers to implementation. In contrast to the 'ideal' curriculum design process, literature relating to actual practice suggests that most academics are overwhelmed by the different agendas being promoted in HE, and may lack the time, confidence and support to initiate change within current HE infrastructures (McGoldrick, 2002; Oliver, 2002).

Internal influences exist at interpersonal, historical and organisational levels - for example, resistance from team members, lack of ownership of modules because of high staff turnover, and laborious bureaucratic procedures that limit change and flexibility of delivery (Oliver, 2002). External barriers were also identified, including numerous and sometimes conflicting agendas disseminated from the Government through professional bodies and higher education institutions (HEIs). These included widening participation, increasing employability and lifelong learning, changing professional requirements, and ensuring student ownership (McGoldrick, 2002; Shaw, 2002). As Kift (2004) described, many higher educators are change-weary or change-averse.

To overcome these barriers, more rigorous research is needed to convince academics and managers that a more creative approach is worthy of their time and energy - one that addresses national agendas, but also benefits their students as individuals.

5 Findings from staff workshops, student focus groups and case studies

This section reports on findings from eight full case studies, five small case studies, three staff workshops at national conferences and three student focus groups at QMU. The report of the First-Year Experience sector-wide discussion project *Student expectations, experiences and reflections on the first year* indicates that although students referred to issues under consideration by all the Enhancement Theme's projects, hardly any discussion that took place with students focused specifically on curriculum design.

5.1 Staff workshops

The staff workshops offered an opportunity to disseminate some of the early findings from the work of this project, which were predominantly based on the literature review (see section 4 and Appendix 1). However, the workshops also offered staff an opportunity to describe their vision of what an 'ideal' first-year curriculum should look like. The most commonly mentioned themes and features described by staff are presented in table 2.

Key features of an 'ideal' first-year curriculum gathered from staff in workshops:

- coordinated programme-level approach
- small-group work
- problem-based learning (PBL)
- student choice
- early formative feedback
- using the most experienced staff to teach first-year students
- involving students in curriculum design
- opportunities for students to have personal contact with staff
- clear communication between staff and students about all elements of the curriculum
- enjoyment.

All the areas in which the other First-Year Experience practice-focused development projects worked (formative assessment, peer support, personal development planning (PDP), personalisation, scholarship skills and transition) were mentioned at least once by staff as contributing in some way to their vision of first-year curriculum design. Those mentioned the most frequently were formative assessment and personalisation, or creating a sense of 'belonging'.

Table 2: key features of an 'ideal' first-year curriculum gathered from staff in workshops

These ideal elements of the curriculum described by staff largely overlapped with the literature. Indeed, staff may have been influenced by the literature they had read. Interestingly, peer support, PDP and enjoyment did not feature so highly in the literature.

5.2 Student focus groups

In focus groups with first-year students at QMU, participants were asked about their experience at university and whether they had been involved in designing the first-year curriculum in any way. Students commented on elements of the curriculum such as assessment - for example, they made many comments about their desire to receive quicker feedback on assessed work. However, in common with the sector-wide discussion project on student expectations, experiences and reflections, students had more to say about non-curricular issues than about the curriculum.¹

Nevertheless, two key points were made in these focus groups. One was the need for more challenging work in the first year. Many students did not feel stretched by the first-year curriculum they had experienced, and described going backwards from the demands of school (this was also consistent with findings from the project on student expectations, experiences and reflections). It may be worth referring here to various theories outlining the 'teacher-expectancy effect' (Jussim and Harber, 2005; Rosenthal and Jacobson, 1992), where students tend to meet the expectations of their tutors. This theory suggests that if we have higher expectations of our students, they are more likely to enhance their performance to meet those expectations.

The second key point raised was that students reported not being involved at all in curriculum design other than feeding back on module or programme evaluation forms. However, all the students in the three focus groups reported their interest in being involved more closely, particularly in timetabling aspects of the curriculum.

The key elements of an 'ideal' first-year curriculum outlined by students in the focus groups are summarised in table 3.

Key features of an 'ideal' first-year curriculum gathered from students in focus groups:

- more attention on assessment and timely feedback
- more challenging work
- involving students in curriculum design in a role that is 'more than just feedback'
- student participation in designing timetabling and curricular structure.

Table 3: key features of an 'ideal' first-year curriculum gathered from students in focus groups

¹ In the case of QMU students, not only did they offer substantial feedback about information technology (IT) facilities, socialising and accommodation, but many were most concerned about the move to a new campus in September 2007.

5.3 Case studies

This section presents findings from eight full case studies (see Appendix 2 for the complete case studies) and from five short case studies; the latter included some interesting features of curriculum design, but for a number of reasons were not included as full case studies (see further details in Appendix 3). Some of the studies describe curriculum design at programme level, some at module level, and some at both. These different interpretations of the levels at which curriculum design takes place are consistent with the work of Fraser and Bosanquet (2006), who highlighted the variety of ways in which staff define curriculum.

Most of the case studies do not describe active involvement of students in first-year curriculum design, although there are several interesting examples where students have adopted a more active role in either leading or collaborating with staff in first-year curriculum design.

The eight full case studies presented are from six Scottish universities (Edinburgh, Napier, Queen Margaret, Robert Gordon, Stirling and Strathclyde), one Irish institution (University College, Dublin) and one American institution (Elon University, North Carolina). The case studies cover the following disciplines:

- Biological and Environmental Science
- Biology
- Computing and Mathematics
- Education
- Environmental Justice
- Geography
- Mechanical Engineering
- Nursing
- Philosophy
- Physics

They also include reference to interdisciplinary and foundation courses. The wide range of disciplines covered is in part because several case studies describe work in more than one area.

The key issues raised within the case studies are presented in the following sub-sections:

- brief overview of the nature of the case studies
- rationales for curriculum redesign
- student engagement
- student empowerment
- student involvement in first-year curriculum design
- evaluation of changes to curriculum design
- useful lessons for others in the HE sector
- factors facilitating the progress of the work

- barriers to progress
- dissemination of case study examples.

The elements contributing to an 'ideal' first-year curriculum contained within these case studies are summarised in table 4 and explained more fully in the following sub-sections.

Key features of an 'ideal' first-year curriculum gathered from the case studies:

- inclusive of diversity
- relevance to students - using students' own experiences as a focus for learning and as a basis for curriculum design
- alignment of intended learning outcomes with assessment and learning approach
- students to be members of a learning community
- social networks to build student confidence
- active learning approaches, including small-group work, modelling and simulation, structured tasks, problem-based learning
- early and regular feedback
- continuous assessment
- incentives for students to engage with the work
- use of learning contracts
- use of electronic voting systems (EVS)
- use of computer software to break down barriers to learning
- physical redesign of learning spaces
- increased student choice through, for example, personalised routes of study and within assessments
- student participation in real and authentic projects, including curriculum design
- giving students more responsibility
- listening to student voices and ensuring that these views effect change.

Table 4: key features of an 'ideal' first-year curriculum gathered from the case studies

5.3.1 Brief overview of the nature of the case studies

Case study 1: Simon Bates, University of Edinburgh, Physics

Over the last eight years, Simon Bates and colleagues have been developing a blended learning approach in their first-year programme. There are approximately 250 students in each first year, the staff's aim has been to use the best of face-to-face teaching approaches and interactive technology to support learning. Students are given a high level of choice as to the topics they study and therefore which route they take through the course.

Case study 2: Jane Brown, Napier University, Edinburgh, Nursing

Over the last six years, Jane Brown and colleagues have been adapting a core module for all first-year pre-registration nursing students. Key elements emphasised include: continuity of tutors; considerate timetabling; a comprehensive module handbook, including learning outcomes for each class that link explicitly to assessment; and a staged assessment process that involves early and regular formative feedback.

Case study 3: Eurig Scandrett, Queen Margaret University, Edinburgh, Environmental Justice

The Higher Education Certificate (HE Cert) in Environmental Justice runs as a collaboration between Friends of the Earth Scotland and QMU to support communities tackling local environmental issues by building the capacity of key activists. The focus of the HE Cert is to provide students with an academically rigorous and practically useful course that uses a Freirean pedagogical approach (Freire, 1993). Students' own experiences of environmental problems are integrated throughout the course and used as the foundation for dialogue with other forms of knowledge. Therefore, students' experiences guide the design of the curriculum throughout the first year.

Case study 4: Roger McDermott, Robert Gordon University, Aberdeen, Computing and Mathematics

Staff have adapted elements of the first year in a way that has changed how students perceive the subject of computer programming. They have introduced a new programming package called 'Alice' in a first-year introductory module to help students to engage in the subject and overcome 'troublesome knowledge' (Meyer and Land, 2003). The software has helped students to undertake programming through a storytelling approach rather than through the use of algorithms. Divergent assessment has also been adopted, which enables students to generate their own individual solutions to problems. This approach fulfils the formal assessment objectives, but it also gives the opportunity for self-expression and creativity.

Case study 5: Carol Salt, University of Stirling, Biological and Environmental Sciences

Four years ago, staff began redesigning the first-year programmes. Six modules form a common foundation to many of the programmes offered. Two new modules that have been introduced, dedicated to practical laboratory and field skills, use group working as one of their key approaches.

In Environmental Sciences, the first and second-year modules have been restructured to emphasise current global environmental issues, which are explored in terms of the underlying science, social and economic aspects and potential solutions. Two modules in Biological Sciences have enhanced the relevance of the syllabus of fundamental scientific aspects of biology by introducing topical issues into lectures and assignments. In all six modules, the teaching of skills and subject-specific content is closely aligned to the learning outcomes. Assessment is continuous over each semester and is based on a mix of laboratory and field reports, essays, oral presentations and tests/exams.

Case study 6: Jim Boyle, University of Strathclyde, Mechanical Engineering

Staff have undertaken 14 years of continual redesign of the first-year mechanical engineering programme to ensure a more integrated and coherent programme. The curriculum emphasises group work, active and collaborative learning, problem-based learning and teaching by questioning (supported by electronic voting systems). The curriculum redesign has also involved physical redesign of some of the teaching spaces so that there are purpose-built teaching studios for mathematics and IT-related subjects. These spaces are ideal for combining access to electronic media and small and large-group work. Staff have reported much higher attendance at classes, and higher student retention rates.

Case study 7: Niamh Moore, University College, Dublin, Geography

Staff identified some key elements and themes they wanted to change in the first-year Introduction to Human Geography module. They moved to a thematically-based module with continuous assessment and adopted an active learning approach that includes small-group work, interactive discussion online and enquiry-based learning within quite large class sizes. Students became central partners in the module preparation. Three undergraduates were employed for six weeks to research and develop content for the virtual learning environment (VLE).

Case study 8: Peter Felten, Elon University, North Carolina, United States

This case study outlines work in a number of subject areas, including education, biology and philosophy. In one education course in classroom management, undergraduates and staff collaborated to redesign the course. In a first-year Introduction to Biology course, student feedback is collected and a small group of students who have completed the course work with staff to interpret the student feedback data and make changes to the course. A small group of students who have completed a first-year Introduction to Philosophy course are invited to undertake a research course, as part of which they redesign the Introduction to Philosophy ethics course. These examples of involving students in first-year module redesign are prompting ideas of involving students in programme redesign.

5.3.2 Rationales for curriculum redesign

In the case studies, the rationales given by staff for redesigning first-year modules and programmes varied, but with some recurring themes. Staff mentioned concerns about poor student attendance (case studies 2, 6 and 7) and a desire to move away from lecturing to large numbers of students (case studies 2 and 7). There was also a mention of adapting courses to be more inclusive of the diversity of first-year students and to better enable students to develop the diverse skills they will need on leaving university (case studies 1, 5, 7 and short case study iii).

There were concerns about levels of student engagement (case studies 2, 4, 6 and 7) and, related to this concern, a desire to create a more relevant curriculum (case studies 3 and 5). As Carol Salt stated, 'changes to the syllabus, to increase its relevance to current issues, were made to promote student interest and make modules attractive optional choices for students from other departments'.

The rationale for redesigning the curriculum was also influenced by institutional policies, and there was a mention of the need to achieve teaching efficiencies through closer integration of first-year modules (case study 5). Some staff expressed the view that redesign gave them an opportunity to improve on an original curriculum design that did not explicitly align learning outcomes with assessment and learning approaches (case studies 2 and 7). One case study emphasised making changes to first-year curriculum design in order to increase student involvement as members of curriculum redesign teams (case study 8). Finally, staff in one case study outlined the influence of visiting other institutions in demonstrating '...very strongly to us that this approach would work, as well as being much more engaging' (case study 6).

5.3.3 Student engagement

The examples in the case studies suggested a number of approaches to engaging students. Many focused on pedagogically engaging techniques, such as peer instruction, small-group work, modelling and simulation, structured tasks and problem-based learning (case studies 1, 3, 4 and 6; short case studies i and iv). Early and regular feedback to students was another approach used to engage students (case study 2 and short case study i). Related to this, several examples demonstrated the use of continuous assessment (case studies 5 and 7). One example outlined offering incentives to students in the form of a small proportion of marks towards an assignment if they demonstrated preparation for tutorials and engagement in the work (case study 7).

Other approaches included the use of learning contracts which emphasised that if face-to-face time was spent in interactive exercises, more content needed to be covered in students' own time (case study 1). Electronic voting systems have also been used very effectively in large classes to increase interaction and engagement, as has significant physical redesign of teaching spaces to enable the use of more exciting and interactive teaching approaches (case studies 1 and 6).

Another key strand within the case studies was the idea of making the curriculum more relevant to first-year students and hence increasing levels of engagement (case studies 2, 3, 5 and short case study iv). In some instances, this was by encouraging students to use their own experiences as a focus for learning and as an integral part of the curriculum (case studies 3 and 5). Eurig Scandrett explained that:

Students on the HE Cert Environmental Justice are required to be involved in a community-based or trade union campaign or project. They present this project to others at induction, and the tutor guides the discussion into progressively more analytical questions (using Freirean methodology). The generative themes which result across the group provide a basis for interpreting environmental justice. These are linked into relevant parts of the existing curriculum or added to through additional inputs. The campaigns and projects become the focus of the teaching, learning and assessment throughout the course and students learn from each other - in person or via WebCT - as well as from course material.

The example from Computing and Mathematics has engaged students through using software to promote a different approach to learning that breaks down barriers to learning 'troublesome knowledge' in the subject (case study 4). As Roger McDermott explained:

An important claim for...[Alice]...software is that it facilitates a change in the underlying subject metaphor from one based on the implementation of mathematical algorithms to one based on storytelling. This helps to engage the imagination of the students and allows them to see the subject in a new and accessible way.

Another key approach to engage students is through increasing student choice, by enabling personalised routes of study (case study 1) and creative freedom within assessments (case study 4). Finally, the importance of students participating in real projects that involve real course design was emphasised. Students are more likely to be engaged where they can see that their suggestions are making changes to real courses (case study 8).

5.3.4 Student empowerment

Perhaps unsurprisingly, within the case studies, descriptions of student engagement specifically through curriculum design overlapped with more general descriptions of student engagement. However, the ways in which staff thought that the first-year curriculum added to the themes of engagement by empowering students included ensuring that students were active (case study 6). As Jim Boyle described, 'the students now have an active role in each class...they contribute to the class, and through their discussion and response to questions, guide the delivery of the class continuously. Implicitly, all these techniques reinforce student formative self-assessment' (see also short case study ii).

Small-group work and problem-based learning were thought to contribute to student empowerment where, for example, students had to negotiate their own working groups (case studies 1 and 5). Using students' own experience as the basis for learning, although raised in the discussion of engagement, was thought to have the potential to go further and empower students (case study 3).

Student empowerment was thought to be enhanced by demonstrating that student voices were heard and could effect change. This gave an explicit message to students that the power relationship between them and their tutors was a collaborative and relatively equal one (case study 8). As Peter Felten stated:

We have found that it often takes time for students to develop the confidence (and the language) to express pedagogical ideas clearly. Many seem at first to doubt that we will take them seriously. In most course design projects, a moment comes when students suddenly realise that they are being heard. We have begun to structure our course design projects to include an early and public point when students are making an important decision, such as selecting the textbook. This moment typically changes the dynamic of the design group, empowering students to be active participants and showing faculty the value of listening to students.

5.3.5 Student involvement in first-year curriculum design

The most common route through which students' views influenced first-year curriculum design was course feedback questionnaires at the end of modules or programmes (case studies 1, 2 and 4). Other approaches included:

- course feedback at a later stage after a course had finished and where students had had a chance to transfer knowledge and skills to other settings (case study 4)
- student surveys using electronic voting systems (case studies 1 and 6)
- student focus groups (case study 1)
- student-staff consultative committees (case study 5).

Carol Salt reported that 'while students have so far not been involved in curriculum design we have recently started a debate in our student-staff consultative committee on how students would like to see the new Enhancement Theme of research-led teaching shape the future curriculum'.

One challenge with these approaches is that feedback from first-year students generally informs curriculum design for subsequent cohorts of students, which can prevent some students from wanting to become actively involved. Hence it is important to integrate student feedback in an ongoing process throughout the first year (short case study v).

Only three of the eight full case studies described students being actively involved in curriculum design (case studies 3, 7 and 8). These were the only case studies submitted to the project team that included examples of student involvement in designing first-year curricula. This echoed the student focus group findings, where students reported few opportunities to be involved in curriculum design.

The following quotes illuminate some of the approaches adopted in the case studies.

Peter Felten reported that:

Elon has a tradition of involving students in all aspects of university life and governance. Recently we began exploring how to involve students systematically in course design. Faculty who have adopted this approach believe that students have expertise or experiences that will illuminate the course design process. Some faculty are most interested in how to help students learn difficult or complex course material; in this case, students involved in course design assist the faculty member in understanding how and why novices struggle to learn specific knowledge or processes. Other faculty involve students as a way to better understand the undergraduate experience in specific courses and in college today. Faculty who have adopted this approach also believe that involving students in

the design process is itself educational, potentially transforming not only the course but also the students and faculty who work together to design a course.

Niamh Moore explained that:

...three undergraduate students who had successfully completed their second year were employed to develop module content. At that point, the overall framework of the module was in place and the coordinators provided the students with...four case study themes. They were then given free rein to source/develop content that they would view as appropriate and helpful for learning. Weekly meetings took place to review progress, resolve difficulties and provide general guidance. The students were provided with access to iMac computers, video cameras, digital photo cameras and the internet and were encouraged to demonstrate a range of research skills that they had learnt during their studies.... They were given full control of the design of the Virtual Learning Environment.

At the end of the internship, the coordinators reviewed the portal developed and discussed with the students how the material would be used and adjusted if necessary.... We advertised the positions within the department to our second-year students and asked them to let us know if they were interested. We then asked them to submit their curriculum vitae and some ideas in writing about how they would approach sourcing case study material. We shortlisted six students and went through an interview process with them.

Finally, Eurig Scandrett described how students design aspects of their own curricula through ongoing dialogue between tutor and student: '...students are involved in dialogical methods to design curriculum on an ongoing basis. In addition, course materials have been selected and partially written by students...'.

5.3.6 Evaluation of changes to curriculum design

Some of the case studies had adopted research-based approaches to evaluating the curriculum (case studies 6, 7 and 8). The most thorough evaluations were well planned, adopting a research approach using qualitative or quantitative methods, or both, within a mixed-methods evaluation. One example involved use of a systematic evaluation using several tools in order to triangulate data and provide an ongoing profile of the process (case study 7). A pre-module questionnaire was employed to determine students' experiences of teaching. This was followed by mid-point and end-of-module questionnaires and focus groups to determine students' learning and levels of engagement. Engagement was evaluated by asking questions about whether students applied knowledge to their own experiences and discussed the module with people outside the class, and how flexible they were to learning. To ascertain the staff perspective, module coordinators kept teaching logs.

Similarly, another case study involved the use of pre and post-project interviews, individual written journals documenting the process, and student work products. Staff also compared the course syllabus and materials before and after the design project as a means of tracking changes to content and organisation (case study 8).

Jim Boyle has reported previously on evaluation of case study 6 by an independent reviewer (Nicol and Boyle, 2003; Boyle and Nicol, 2003) and through scrutiny of marks.

This demonstrated a change from a bi-modal distribution (with lower mode representing disengaged students) to a uni-modal distribution with clustering just above average.

Many of the case studies collected student feedback during the module, or more commonly at the end of it (case studies 2, 5 and 7). In one case, staff carried out a quantitative evaluation through non-parametric analysis of responses to questionnaires (case study 4). Another example talked of the efficiency with which staff collected 'high volume, real time' feedback from students during their module by using electronic voting systems (case study 6). Using EVS as a method of generating student feedback offered a multiplicity of opportunities, particularly as students expressed their enthusiasm for these voting systems.

Staff often looked to assessment results as an output measurement of change. Two of the case studies gave examples of this (case studies 2 and 6). One demonstrated a shift in mark distribution (case study 6), and the other showed an improved pass rate with a change in assessment frequency (case study 2). Obviously, it is important to consider these results in the context of other alterations to the programme.

Finally, other means of evaluating success were measured through student activity, such as the volume and frequency of online self-assessments, attendance and enrolment. Carol Salt reported considerably increased usage statistics on voluntary self-assessment tests after modification to the course (case study 5).

5.3.7 Useful lessons for others in the higher education sector

Staff outlined a variety of lessons for the HE sector. Three respondents stated that the first-year curriculum should be designed in such a way as to facilitate interactivity and engagement in active, collaborative learning (case studies 1, 6 and 7). Teaching methods using EVS, group work, problem-solving and online tasks, for example, were seen as being broadly transferable and important for improving learning. Another significant point was that the curriculum should facilitate social networks to help to build student confidence, which can nourish enthusiasm for learning (case study 7). As Niamh Moore stated, 'Being among "friends" gives them a vested interest in attendance, promotes their willingness to engage in self-directed and peer learning through group regulation of learning activities'. This view mirrored that of Beder (1997) cited in the literature review.

Ensuring the relevance of the curriculum was another feature emphasised as important (case studies 3 and 5). Topicality can stimulate student interest and establish links with employment. Interest may also be improved by using a variety of assessment strategies, such as divergent assessment (case study 4).

Some of the case studies also outlined the need for commitment from staff to ensure the success of curriculum change. One emphasised the positive experience of collaboration with an external partner to develop a very relevant curriculum suited to a specific purpose (case study 3). Another lesson was the need to factor in plenty of time to involve students in curriculum design (case study 8).

Finally, although it was clear that strategic thinking and planning had underpinned all the initiatives cited here, only one person specifically mentioned the usefulness of a predetermined strategy to guide the process of change (case study 2).

5.3.8 Factors facilitating the progress of the work

Interested and enthusiastic support from colleagues was identified as the most important facilitator for staff leading curricular change. Peers who were sympathetic to innovations and could see their potential provided a real motivating force for continuing. One respondent commented on the value of a 'collective spirit' among her colleagues, which helped to move the initiative forward (case study 5). However, in addition to the moral support gained from those with positive attitudes, colleagues helped individuals to navigate complex university structures, procedures and regulations. They also helped to make links with other colleagues who have been successful in implementing innovations or changes.

Significant progress had been made by individuals who had received advice and support from educational developers, who also acted as facilitators and encouragers. In one instance, the project was part of a larger initiative led by the educational development unit (case study 8). One of the short case studies outlined a process of working with educational developers, but also with the HEA subject centre (short case study v). Learning technologists were also thought to be essential, where the design of electronic resources was key to activities that would engage students (case study 1).

Only one respondent mentioned funding for their work, but such monetary support enabled the team to develop learning materials (case study 7).

Institutional recognition of initiatives lent status to those who led curricular changes. This may have been simply through acknowledgement of the importance of initiatives. Those with senior or honorary positions, such as teaching fellows, may have been able to influence peers.

5.3.9 Barriers to progress

The case studies outlined a number of challenges for first-year curriculum design. More than half of them included discussions about staffing levels, as first-year class sizes have become increasingly larger. Others referred to the difficulties of teaching and giving feedback to large numbers of students in a manner that would encourage student engagement (case study 5).

The staff time required to implement these initiatives was an issue, with some staff referring to other conflicting demands on their time. One respondent from a research-intensive university drew attention to the time and energy required of individuals to focus on curricular changes when expected to keep up research activity - a well-known situation in the UK HE context (case study 1). As mentioned above, one case study suggested that the additional time necessary to involve students in course design may act as a barrier. For example, it may mean planning programme review well in advance of the start date for a programme (case study 8).

Three of our eight respondents were of the opinion that sometimes their colleagues' attitudes were not entirely supportive of their first-year work (case studies 2, 6 and 7). For example, they had experienced cynicism or scepticism from some colleagues, who viewed their innovations as 'fads' or as processes which would result in a 'dumbing-down' of the curriculum. One respondent suggested that work on generic support modules for first-year students was often viewed as servicing larger degree

programmes rather than as providing the foundations of knowledge essential for students developing effective study skills. This led to the work being devalued, despite its essential role in enabling learning on wider degree programmes (case study 2). Another respondent referred to the need for innovative approaches to programme approval from institutions.

The view that university processes and structures may present barriers if they are too inflexible was shared by several respondents (case studies 3 and 4). One respondent in particular found some difficulty in dealing with 'rules' related to admissions, finance and administration, which were based on the way more 'traditional' programmes ran (case study 3). Another agreed that radical changes within a 'conventional' curricular framework had presented problems. These findings reinforce the view of Kift and Nelson (2005), who suggested that systemic, university-wide changes should accompany curriculum redesign to ensure that administration and support are integrated with the curriculum and respond to student needs.

An important factor in engaging students in course design was the acknowledgement that real empowerment required a change of roles for both staff and students, resulting in altered dynamics in relationships and changes to power within planning groups. As Peter Felten argued: 'involving students also requires significant role shifts for both faculty (who must be willing to share some power over the course) and students (who do not always take themselves or the process seriously)'.

This could sometimes present problems if students lacked experience and understanding of context and issues. Eurig Scandrett (case study 3) has attempted to give students full responsibility for determining topics for group study, but found this more difficult for students who were younger and had little personal experience from which to draw. While this may be a generally applicable observation, it was particularly relevant for this programme, which was designed for individuals who were preparing for their roles as political activists.

5.3.10 Dissemination of case study examples

The most common form of dissemination was through external conference presentations and university staff conferences or workshops, as demonstrated by five of the eight case studies (case studies 3, 4, 6, 7 and 8). Three of the eight initiatives had also been written up as papers (case studies 1, 3 and 7). For three of the case studies, information was available on a dedicated website (case studies 1, 6 and 8). One case study also outlined the use of screencasts and a blog to stimulate interest in their work (case study 1). Only the initiatives reported by Peter Felten in case study 8 have been disseminated through membership of a sector-level project - the Carnegie Leadership Project.

6 Discussion

In bringing together findings from the literature, staff workshops, student focus groups and case studies from practice, the messages presented are complex. The lack of agreement about how to define curriculum is a clue to the complexity of first-year curriculum design, so it was unlikely that this project would be able to present simple results indicating 'quick-fix' approaches. Nevertheless, several issues are worthy of further discussion in this section:

- the need for early formative feedback and active learning approaches
- student involvement in curriculum design
- curricular structure.

6.1 The need for early formative feedback and active learning approaches

A recurring theme throughout the work of this project was the importance of giving students early and regular formative feedback. Calls for early formative feedback in the first year came from the literature, staff workshops, student focus groups and the case studies. Indeed, the shared view that formative feedback plays a crucial role in first-year students' engagement and empowerment suggests that it should be an integral part of every curriculum in the first year.

Where students receive early formative feedback, they become more aware of how they are progressing and therefore are more able to become informed and self-directed learners. Whittaker (2008), in section 14 of her report on the First-Year Experience project on transition, has also advocated more formative assessment and feedback; changing the pace of the first year to allow more time for development of skills, attitudes and strategies to improve success in later years; and increasing the level of academic challenge through problem-based, enquiry-based and collaborative learning. This issue has been addressed in more depth in the First-Year Experience project report by Nicol (2008) on formative assessment.

Another key area of agreement within the work of the curriculum design project was the importance of using active learning approaches to ensure that students become engaged right from the start of their university experience. Small-group work, problem-based learning, enquiry-based learning and other experiential forms of learning were all mentioned as critical ways of ensuring that students become more active in the learning process. Most of these approaches are implicitly student-centred or student-led and suggest greater student choice. But they need not imply a reduction in the level or demands of learning in the disciplines. Indeed, the concerns raised by students indicating the need for a greater quantity of more challenging work in the first year sends a strong message that students' capabilities should not be underestimated (see earlier reference to the 'teacher-expectancy effect', Jussim and Harber, 2005; Rosenthal and Jacobson, 1992). Students should be stretched intellectually in their subject as well as in developing more generic skills.

Active learning approaches often make learning more relevant to students, and this contributes to student engagement and empowerment (Brown, Collins and Duguid, 1989; Rogers and Freiberg, 1969; Marton and Saljo, 1997). This moves from views of empowerment linked to transferable skills towards other definitions of student empowerment that are more political. These more political definitions of empowerment suggest that students are empowered through freedom to learn, involving personal and community transformatory change (see for example Freire, 1993; Giroux, 1981; Rogers and Freiberg, 1969).

6.2 Student involvement in curriculum design

One of the ways in which students could be engaged and empowered is through greater participation in curriculum design. Calls for student involvement in curriculum design go back as far as the early twentieth century, when Dewey (1916) outlined the desirability of co-created curricula in schools. Collaborative curriculum design has also been emphasised by writers contributing to critical pedagogy discourse (see for example Apple, 1986 and 1981; Darder, Baltonado and Torres, 2003; Giroux, 1981). However, there have been few calls for co-created curricula within HE outside of language teaching (Breen and Littlejohn, 2000), despite Fraser and Bosanquet's (2006) research, which suggested that some academics define curriculum as a dynamic interaction and collaboration between student and teacher. Certainly in the literature review for this project (see Appendix 1) the literature specifically on first-year curriculum design contained very few references to collaborative curriculum design.

The views expressed in the student focus groups suggested that students were most interested in contributing to timetabling matters. Views from the staff workshops also suggested that student feedback was usually about logistics and delivering, and not so much about academic content. It is important to encourage students to ensure that their voices are heard within curriculum design. One project which has been trying to ensure that the student voice is heard within the pedagogical approaches being adopted is the 'Hearing the Student Voice' project (Napier University et al, 2006).

Questions were asked in staff workshops about whether students know enough to contribute meaningfully to curriculum design. This question has also been raised within the literature on collaborative curriculum design (Slembrouck, 2000). However, as with anything students are asked to be part of, adequate preparation is essential for them to be able to complete the task they have been set. Peter Felten, in case study 8, described the early stages of working with students, where they lacked confidence in what they could contribute, but how - when well managed - students could gain confidence over time through stepped progress and feedback from peers and tutors.

There are challenges to involving students. For example, if one group of students suggests a redesign of the first year, but previous students have liked the curriculum as it is, should changes be made? The answer to this probably depends on the attitude of the tutor as to what degree of control students should have over the design of the curriculum that influences their learning. Slembrouck (2000) raised a number of other questions that may be posed, including: how will different levels of student contribution be mediated without leading to frustration? Also, how will a student-designed curriculum link to a final summative assessment? Groups who collaborate to design curricula are like other groups

and are bound to have some members who are dominant and others who contribute less. The challenge is perhaps less about achieving equality and more about responding sensitively to the diversity of views in a curriculum design group.

In terms of how student-designed curricula can link to assessment, the most obvious response is to ensure that students are involved in designing the assessment, with guidance from staff to help to ensure that elements of the curriculum are constructively aligned (Biggs, 2003). Wherever possible, changes on the basis of student feedback should affect that group of students rather than subsequent ones. Involving students meaningfully can contribute to their engagement and ownership of the learning process.

The levels of possible student involvement are many and range from no involvement through to students being in control of designing the curriculum. Most staff and students will collaborate in between these extremes, and all of the case studies contained in Appendices 2 and 3 illustrate slightly different levels of student feedback and involvement.

When setting out on this project, the team hoped to explore not only how students were being engaged and empowered through the first-year curriculum, but also how being involved in co-designing the first-year curriculum had contributed to their engagement and empowerment. However, there was little in the literature on the first-year curriculum and on the HE curriculum outlining student involvement (Barnett and Coate, 2005; Breen and Littlejohn, 2000), and only a handful of examples that contributed to our understanding in this area. Indeed, where evaluation has been carried out, it has tended to focus on the outcomes of design change in the first-year curriculum. There is still little known about how taking part in curriculum design affects students who have been involved. Anecdotally, there were reports of increased confidence and improved negotiation skills among students involved in curriculum design projects, but more research is needed into whether these experiences engage or empower students.

6.3 Curricular structure

The final area that warrants some discussion is curricular structure. As discussed earlier, many teaching and learning approaches likely to be implemented at modular level could be adopted more strategically across programme-level curricula. Attention was also drawn to Kift and Nelson's (2005) view that systematic university-wide change was needed rather than fragmented approaches.

However, nowhere in the literature review or during staff workshops were issues of common foundation courses in the first year or debates about different modular structures within the first-year curriculum discussed in any depth. Yet individual academic staff raised a number of debates about the structure of the first-year curriculum as being of interest.

Some of the questions raised were whether lengthier and less intense, or shorter and more intense modules were more beneficial to students. Anecdotally, several staff favoured longer, more spread-out modules in first-year courses. They argued that such modules enabled greater continuity of staff, helping students and tutors to get to know each other better and thereby contributing to personalisation of the student experience and more informed formative feedback.

Engineering staff at the University of Birmingham described the advantage of being able to use the most experienced lecturers to teach first-year courses where the longer, less intense modular structure was used (Hawwash, 2007). They also described having moved away from specific modules in mathematics towards embedding mathematics in other modules and teaching it when it was needed. This was reported to work well in the first year, but raised issues in the second year because of varied levels of mathematical knowledge among students. They also mentioned that accreditors of courses were more assured that mathematics was being covered where they could see a specific module rather than a subject being 'hidden' within related modules.

Another issue connected to curricular structure is the four-year degree in Scotland. Within Scottish degrees the first year is often viewed differently to that in three-year degrees. Kochanowska and Johnston (2008), in their First-Year Experience project report on student expectations, experiences and reflections, have indicated that there is a need to explore further the Scottish four-year degree programme and ascertain the purposes of the first year in such a programme.

Students reported not feeling academically challenged by their first year of study. They also often thought that degree programmes based on faculty entry systems were not owned by departments. Students often ended up feeling forced to take subjects of little interest. Although this offers them flexibility to change their programme of study, many students reported finding this alienating and demotivating. This raises a number of questions about how degree programmes should be structured. Indeed, the issues noted here suggest that perhaps more questions are being raised than answered. The first-year curriculum and in particular the way it is structured are areas that require rigorous research.

7 Conclusions

Thorough root and branch redesign is considered to be the favoured approach to changing the curriculum of a first-year programme. However, this is a significant undertaking requiring support across a discipline and institution in order for substantial redesign changes to be undertaken and sustained. Many contexts lack the facilitating factors reported by staff in the case studies for this project, and a number of barriers to change may well exist.

In less than optimal circumstances, it may be more pragmatic to suggest selecting several of the key issues identified in table 1 (page 10) or within the recommendations below and try to embed these within a module before tackling issues at programme level. However, comprehensive change of a first-year curriculum is likely to have more dramatic effects on student engagement and empowerment, as seen in the case studies presented in this report.

Engagement of students through active learning approaches and involving them in curriculum design were issues discussed in many of the various project stages. Key features of first-year curricula with the potential to engage and empower students include:

- a student-focused curriculum
- a curriculum that is responsive to student needs
- involving students as co-designers of their own curriculum
- a first-year curriculum in which learning is enjoyable.

A strong note of caution is needed regarding the paucity of rigorous research and evaluation into first-year curriculum design. Many debates have been taking place anecdotally about which particular approaches to the first-year experience are desirable, but there has been little research to back many of these views. One area where this was found to be particularly the case was the issue of curricular structure. This was an area of interest to a selected group of individuals, but to our knowledge, there has been virtually no research on the most effective ways of structuring the first-year curriculum to enhance student engagement and empowerment.

It is with this caution in mind that we suggest some recommendations in the next section.

8 Recommendations

On the basis of the findings presented in this report we make the following recommendations.

8.1 For managers and policy-makers

It is important for those in senior positions within HEIs and HE-related organisations to support and facilitate first-year curriculum design that engages and empowers students. In order to take a comprehensive approach to first-year curriculum design, staff need support in the form of:

- dedicated time for curriculum redesign, with acknowledgement that involving students often takes longer than more traditional models of staff-driven curriculum design
- strong institutional messages and key champions to raise the status of the first-year experience
- institutional structures that recognise and reward positive examples of curriculum change and facilitate innovative design of the first-year curriculum
- resources for further robust evaluation and research into first-year curriculum design, particularly in the area of curricular structure.

8.2 For academics and practitioners

There is a need for:

- a coherent, comprehensive approach to first-year programme curriculum design, which takes account of all the key elements that contribute to student engagement and empowerment
- pragmatism - where the context makes it difficult to take a comprehensive approach to curriculum design, it is suggested that individuals or programme teams could select several of the key elements identified in table 1 (page 10) or from the case studies in Appendices 2 and 3, and start by making changes in these areas
- commitment to first-year students being co-designers of their own learning experiences; this includes the need to improve communication to enable partnership styles of working, and recognising the need to provide regular opportunities for first years to make an input into their own learning and first-year curriculum
- further evaluation and research of first-year curriculum design, including student involvement in it.

8.3 For students

There is a need for students to:

- become partners in curriculum design by communicating ideas to tutors and feeding back on experiences
- be able to influence their own curriculum and not always that of students in following years
- ask staff for the opportunity to become more involved in the design of their own learning
- become more aware of student participation in quality scotland (sparqs) and other bodies committed to supporting student participation.

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10 Appendices

10.1 Appendix 1: Curriculum design for the first year - literature review

10.1 Introduction

This literature review was carried out within the practice-focused development project on curriculum design for the Enhancement Theme on the First-Year Experience. The project investigated practices in the design of the first-year curriculum in higher education.

The project team aimed to explore potential inter-relationships between curriculum design and student engagement and empowerment. On the one hand, the process of curriculum design might be enhanced through the engagement and involvement of students; on the other hand, creative curriculum design may have the capacity to increase student engagement and empowerment. Both relationships were investigated through this literature review and informed the search strategy.

10.2 Literature search strategy

Two sources of information were used: a systematic search of library databases and a search of relevant websites. First, it was important to define the search terms relevant to the study purpose.

10.2.1 Definition of search terms

Literature was sought that focused on the inter-relationships between curriculum design and student engagement and empowerment in the first year of higher education. The concepts were divided into:

- process - relationships between curriculum design and engagement/empowerment
- context - students in their first year of higher education.

Searching for literature that addresses detail such as teaching and learning strategies would have elicited a very large number of results, many of which would not have been directly relevant to the focus of this study. Therefore, the key words focused on 'curriculum' or 'programme' and on 'design' or 'development'.

The project aims emphasised 'engagement' and 'empowerment'. It was decided that additional words would be added to create greater flexibility. The process might be described as involving students, consulting with them, or receiving feedback to influence curriculum or programme design. Therefore, as well as 'engagement' and 'empowerment', key words included 'involvement', 'consultation' and 'feedback'.

In relation to context, it was important to refer to 'higher education' or 'university' to avoid retrieving literature focusing on primary or secondary education. While some authors are likely to refer to the 'first-year student', international research may also use the term 'freshman'.

These choices led to the development of combinations of search terms, which were used as a foundation for the different searches (table 5). These were subject to modification according to the idiosyncrasies of different databases. The search tips and thesaurus were used for each database. The final modified combinations of search terms are included in the Annex at the end of this literature review, to allow replication and extension of the search if required.

The search of relevant websites revealed many PowerPoint presentations from previous conferences and workshops in the UK. The names of presenters were also entered into Scopus to identify any papers contributing to, or resulting from, relevant presentations.

Search component	A	B	C	D
Search terms	engagement OR empowerment OR involvement OR consultation OR feedback	'curriculum design' OR 'program* design' OR 'curriculum development' OR 'program* development'	'higher education' OR 'university'	'first year student' OR 'freshman'
Combinations of search terms	A + B + C + D A + B + C A + B + D A + C + D			
Limiters	1) English language only 2) 10-year limit (full years): 1996-2007 3) NOT primary or secondary education therefore include 'NOT school'			
Selection criteria	1) Focus on the relationship between curriculum design and student engagement/empowerment in first-year students in HE. 2) If the search yields too many results, the focus will be on research carried out in Scotland first, then in the UK, and then internationally.			

Table 5: search strategy - combinations of terms and limiters

10.2.2 Selection of databases and websites

It was anticipated that relevant literature might be sparse, both locally and internationally. For this reason, a variety of databases and websites were used and are summarised in table 6.

Information source	UK-specific	International
Library databases	<ul style="list-style-type: none"> British Education Index (BEI) 	<ul style="list-style-type: none"> Scopus Australian Education Index (AEI) Emerald Full Text ERIC Ingenta Connect Google Scholar
Relevant websites	<ul style="list-style-type: none"> Enhancement Themes (ET), The First-Year page (www.enhancementthemes.ac.uk/themes/FirstYear/default.asp) Higher Education Academy (www.heacademy.ac.uk) QAA (www.qaa.ac.uk) Society for Research into Higher Education (www.srhe.ac.uk) - main content (eg conference papers) not accessible/searchable unless a member 	<p>USA:</p> <ul style="list-style-type: none"> National Center for Public Policy and Higher Education (NCPPE) www.highereducation.org Higher Education Resource Hub (HERH) www.higher-ed.org Policy Center on the First Year of College (PCFYC) www.firstyear.org/index.html National Resource Center for the First-Year Experience and Students in Transition (NRCFYE) www.sc.edu/fye National Survey of Student Engagement (NSSE) http://nsse.iub.edu/index.cfm <p>Australia:</p> <ul style="list-style-type: none"> First-Year Experience: University of Sydney (FYE: USyd) www.itl.usyd.edu.au/FYE/ Higher Education Research and Development Society of Australasia (HERDSA) www.herdsa.org.au/

Table 6: information sources

10.3 Literature search results

A variety of articles were located in peer-reviewed journals and on websites. A number of PowerPoint presentations and conference or workshop summaries were also found, along with web pages, reports and newsletters. The results of searches through library databases and relevant websites are summarised in tables 7 and 8 respectively (see Annex at the end of this literature review for an explanation of the coding of the search words, for example Ai, Aii etc).

After reviewing the selected abstracts, a number were included in the report as generally relevant to the topic. Very few provided specific examples of curriculum design to increase or involve student engagement and empowerment. The literature is synthesised in relation to the importance of engaging and empowering students, the potential role of curriculum, examples of innovative practice, and an analysis of influences on curriculum design. Research in the area is critiqued and suggestions are made for future practice and evaluation.

Databases	A Scopus	B BEI	C AEI	D Emerald full text	E ERIC	F Ingenta Connect	G Google Scholar
Total number of results	Ai: 1 Aii: 31 Aiii: 1 Aiv: 50 Av: 8	B: 4,874 used ranking ' 50 descriptors ' university curriculum 319 hits	Ci: 0 Cii: 0 Ciii: 20 Civ: 5	Di: 0 Dii: 0 Diii: 0 Div: 0 Dv: 33 Dvi: 23	Ei: 15 Eii: 26 Eiii: 54 Eiv: 58 Ev: 0 Evi: 0	Fi: 34,657 Fii: 64,592 Fiii: 0 Fiv: 0	2,690 Looked at first 1,000, then at recent articles: 648
Number of abstracts for review (potential relevance)	Ai: 0 Aii: 7 Aiii: 0 Aiv: 8 Av: 6	33	Ci: 0 Cii: 0 Ciii: 3 Civ: 1	Di: 0 Dii: 0 Diii: 0 Div: 0 Dv: 0 Dvi: 0	Ei: 1 Eii: 0 Eiii: 0 Eiv: 1 Ev: 0 Evi: 0	Fi: not examineded Fii: 0 Fiii: 0 Fiv: 0	10
Number of articles to collect for review of general relevance to the topic of curriculum design and student engagement/empowerment (accounting for repetition)							6
Specific examples of curriculum design to increase or involve student engagement/empowerment							14

Table 7: results of search of library databases

Website (see table 6 for full names and URLs)	Results					
	Online article/ Report	PowerPoint/ seminar handout	Workshop/ seminar feedback	Newsletter/ update	Web page	Links to:
UK						
ET	2	/	/	/	1	HEA (UK) FYE: USyd (Australia) PCFYC (USA) NRCFYE (USA)
HEA	11	12	2	1	6	Generic Learning and Teaching Support Network (LTSN) documents, not generic site
QAA	1	/	/	/	/	
SRHE	/	/	/	/	/	
USA						
NCPPE	/	/	/	/	/	
HERH	1	/	/	/	1	NSSE
PCFYC	1	/	/	/	2	
NRCFYE	1	/	/	/	2	
NSSE	2	/	/	1	2	
Australia						
HERDSA	7	4	2	1	/	
FYE: USyd	1	/	/	/	2	
Total						
Total	27	16	4	2	15	
Number of references included in literature review:						
General relevance*		17		Specific examples*		6

Table 8: results of search of relevant websites

NB: where a site search led to a link with more information, documents are listed under the link name.

* General relevance to the topic of curriculum design and first-year engagement/empowerment, or specific examples of curriculum design and/or review.

10.3.1 Emphasis on the first-year experience

Recent years have seen increasing international emphasis on the first-year experience, demonstrated in specific policy centres in the US and Australia and focused research through the Quality Enhancement Themes in the UK (Enhancement Themes website for The First Year, www.enhancementthemes.ac.uk/themes/FirstYear). This focus has developed in response to increasing student drop-out in the first academic year, described by Reason et al (2005) as leading to financial, cultural, societal and individual waste. In the US, statistics suggest drop-out rates of 25 per cent of first-year students in HE (ACT, 2002, cited in Reason et al, 2005). This figure appears to be lower in the UK, but still presents a problem. A recent survey of over 6,000 students in 23 institutions found that 11 per cent of full-time students did not continue their studies (Yorke and Longden, 2006).

As well as retention issues, there is increasing concern regarding the quality of student work throughout the first academic year. This is influenced by increasing student numbers, greater diversity and flexibility in course delivery (Beder, 1997). Successful working throughout a degree programme is important to provide high-quality graduates who can contribute to economic and social growth. The first year is thought to be highly formative in the experience of HE, contributing to the likelihood of continuing to the second year, and of success (Piper, 2006; Flores Juarez, 2005). It is therefore important to ensure high-quality education with positive learning experiences.

Performance and persistence both appear to be linked with motivational factors such as interest, expectations of HE and support for learning (Harvey, Drew and Smith, 2006). A recent study reported survey responses from approximately 6,700 students on 30 US campuses. Associations were found between perceptions of academic competence and self-reported student engagement (Reason et al, 2005). This association has led to increased interest in student engagement and the related concept of empowerment.

10.3.2 Student engagement and empowerment

This literature review revealed much discussion of student engagement: what it is, why it is valuable, and how it might be enhanced. When discussing the meaning of student engagement, staff responses to a Higher Education Academy workshop used words that related to behaviours (for example attending, appearing to understand, actively participating, note-taking, doing work out of class, interacting with peers and tutors) and attitudes (for example being open-minded, motivated, enthusiastic, interested, sharing responsibility for learning) (Solomides and Martin, 2005).

In a presentation at a 2006 HEA conference, Bryson et al stated that 'although rarely systematically explored', the topic of engagement encompasses issues of retention, relevant curriculum, effective teaching and facilitation of deep learning. Bryson et al conceptualised engagement more specifically as encompassing 'the perceptions, expectations and experience of being a student and the construction of being a student in higher education'. They saw it as being a prerequisite for learning. The presentation continued by describing a qualitative study of students, with findings that suggested distinct but interconnected aspects of engagement at task, module, course and institutional levels. Engagement in learning was influenced by: 'students' expectations and perceptions, balances between challenge and appropriate workload, degrees of choice, autonomy, risk and opportunities for growth and enjoyment, trust relationships,

communication and discourse'. Factors thought to detract from engagement included assessment of, rather than for, learning; intensive structures that left less time for reflection and activity; and a competitive and detached culture, rather than a cooperative and inquiring one.

A briefing paper on the Enhancement Themes described engagement as concerning 'a student's attitude and commitment to study', while empowerment was seen as being more competence-focused. It was described as a transformational process, carrying with it 'the suggestion that learners will take more control over their own learning' (Piper, 2006, pp 1-2).

This concept of empowerment resonates in the principles disseminated by the Skills Plus project, funded by the HEA Innovations Project (2000-2002). While it aimed to facilitate curriculum tuning to increase employability, Skills Plus focused on the development of transferable skills and positive attitudes. Helsby (2002) conducted more than 200 interviews with recent graduates and their employers. Skills Plus identified specific attributes thought to be associated with employability, including intellectual qualities (for example analytical, independent, critical), transferable skills (for example communication, time management), personal characteristics and attitudes (for example confidence, enthusiasm, proactivity), and career orientation. Skills Plus advocated the development of learned optimism or efficacy beliefs, the use of reflection on learning, and strategic thinking about the best course of action in a situation (Knight and Yorke, 2002). These attributes could be encompassed in the word 'empowerment'.

Student engagement and empowerment are obviously admirable goals, but are they being achieved in HE?

10.3.3 Current levels of student engagement and empowerment

The literature review suggested that there has been more study of engagement than empowerment. In a large Australian survey of the first-year experience, a major indicator of engagement was seen as 'time devoted to academic endeavours, including class attendance and time spent on campus' (Krause et al, 2005 p v). In this survey, 2,344 responses from students in nine universities indicated that according to these criteria, student engagement had reduced since 1994. Although these outcomes were quite simplistic, students spending less time on campus were also found to be less likely to ask questions, contribute in class, work with their peers, or feel like they belonged.

Each year, the US National Survey of Student Engagement measures aspects of the first-year experience, including academic challenge, active and collaborative learning, interactions between staff and students, enriching educational experiences and perceived support. In the 2006 NSSE annual report, responses were summarised from 131,256 first-year students who had responded following random sampling from 523 HEIs (39 per cent response rate). Student engagement demonstrated positive correlations with retention between the first and second years and with performance measures. However, engagement levels were disappointing, as indicated by mean time spent studying outside class. Women were more engaged than men in relation to individual study activities such as time in preparation for classes, email communications with instructors, and redrafting of assignments prior to submission. In contrast, men were more engaged in collaborative learning activities, interacting with peers and academic staff. Both sexes were equally engaged in class presentations and web-based learning.

In comparison with traditional students, distance learners appeared more engaged in educational activities, but less in active and collaborative experiences. Adult learners were more engaged in class-based activities and in related preparation. Part-time students were less engaged with their peers and their tutors (NSSE, 2006).

It is important to know how educators can engage and empower students of all kinds in university courses. In their major literature review of the area, Harvey et al (2006) described the importance of 'goal orientation and self-efficacy' (p iv) as influences on persistence in the face of doubts or difficulties. Some researchers have suggested that confidence and autonomous learning can be developed through appropriate and informed curriculum design (Chan 2001, cited in Harvey, Drew and Smith, 2006; Lines, 2005).

There is evidence of links between academic success and curriculum design. Reason et al (2005) triangulated data from approximately 6,700 students, with responses from over 5,000 academic staff. They found associations between staff reports of coherence in first-year programmes and courses and student perceptions of academic competence.

Flores Juarez (2005) wrote his doctoral thesis on factors influencing student engagement at a Mexican university. A qualitative research design included approximately 30 students in both focus groups and individual interviews. Analysis indicated that eight main factors affected first-year engagement, including personal aspects such as attitudes and behaviours, hopes and goals, relevant people, faculty, fellow students, the academic programme, extracurricular activities, services and infrastructures. The main influence relevant to curriculum design was the academic programme, which included issues relating to assessment, schedules and perceptions of connectedness. Although the structure of the programme was not the only influence on student engagement, it presented a modifiable factor that might facilitate the development of positive attitudes and behaviours, hopes and goals.

This research suggests that there is potential for creative curriculum design in the pursuit of student engagement and empowerment. However, as stated by McInnis (2001), it is not enough to implement ad hoc solutions without good understanding. It is necessary to explore the ways in which curriculum design has been used to facilitate engagement and empowerment. From the review of the literature, it is evident that this is complicated by differing perceptions of the meaning of curriculum.

10.3.4 What is curriculum?

The word curriculum means different things to different academics. Many definitions derive from literature on school education, for example, stating that curriculum is: 'a selection from the culture of a society to be passed on' (Lawton, 1996, cited in Lines, 2005, p 113). This is a very broad definition that emphasises the influence of culture and suggests that knowledge is imparted rather than developed. However, when it comes to higher education, Stark and Lattuca (1997) (cited in Fraser and Bosanquet, 2006, p 7) explained that 'understanding of the word 'curriculum'...[has] commonly evolved at the local level, with little formal agreement about its definition'.

Descriptions of the meaning of curriculum in HE have suggested that it comprises information thought important for students to learn, experiences thought to be necessary, a set of courses on offer, selected discipline-specific content, or the structure of a course in terms of duration or credit (Stark and Lattuca, 1997, cited in Fraser and

Bosanquet, 2006). Bousquet (1970, p 41) provided a definition specific to higher education, with curriculum as 'the embodiment of the educational philosophy of the university', reflecting 'what the academic community deems worthy of knowing'.

Fraser and Bosanquet (2006) carried out a phenomenographic study of varied conceptualisations of curriculum in HE, through interviews with 25 academic teachers in a large Australian university. Thematic analysis led to four categories of conceptualisation of the curriculum as: structure and content of a unit or subject (A), or of a programme (B), learning experiences (C), and a dynamic interaction and collaboration between student and teacher (D).

In that study it was interesting that where academics conceived of curriculum at the unit or programme level (A and B), students were seen as external to the curriculum, although they might influence it to some extent through feedback. Content was seen as prescribed and influenced by professional requirements and changing knowledge within the discipline. In contrast, the curriculum as an experience of learning (C) focused on flexible processes, with room for students to explore their needs and negotiate their learning goals. Finally, the curriculum as a collaborative process (D) took this model further to a view of the 'teacher and student acting as co-constructors of knowledge' (Fraser and Bosanquet, 2006 p 275). Here, interviewees rejected the idea of documents in describing the curriculum, as the goal was empowerment, to be achieved through flexible and open collaboration. However, this conception was felt to be limited by forces internal and external to the institution, making implementation difficult.

This variety of conceptualisation was less evident in the review of website material. One example, a Learning and Teaching Support Network report, summarised interviews with 10 academics and described their understandings of curriculum as being at programme level, including 'essential knowledge, concepts, techniques and values of their particular disciplines' and also 'fuzzier' aspects such as values and attitudes (McGoldrick, 2002 p 5).

Currently, the predominant model in the UK appears to be that of the curriculum as structure and content of a programme. This is the assumption as this literature review progresses, unless stated otherwise. Structure and content of a programme could include the way that modules are chosen and constructed within the academic year (for example over one semester or two). The content and assessment of individual units also have implications for overall curriculum design, if they are used in a developmental way throughout the first year and entire course.

10.3.5 How can curriculum design increase student engagement and empowerment?

This section synthesises and analyses literature directly relevant to the use of curriculum design at unit/modular or programme/course level to increase student engagement or empowerment, and the involvement of students in the process.

10.3.5.1 Curriculum design to engage or empower - module level

The literature contains several suggestions relating to the use of individual modules or units to engage or empower students, and four practical examples or case studies, one of which incorporates an evaluation component, while one reflects on the possible reasons for students' resistance to change. In several instances, the aim of such modules/units is to improve transition; they include workshops prior to the start of the

first academic year and support or orientation modules available on entry. They may or may not be credit-awarding. General aims include the development of learning skills and social networks, and building a sense of context and identity in relation to the institution and the discipline.

Beder (1997) advocated one-week orientation courses at the start of the first academic year, following an increasingly popular US model. The aim is to increase social and academic engagement by facilitating the development of learning and communication skills and peer support groups, while also encouraging a sense of connection to the university and direction within the course and towards a future career.

Mitchell et al (2002) developed an additional non-credit-awarding voluntary first-year workshop for US bioengineering students, held twice a month. It incorporated peer mentoring and aimed to increase community interaction with staff and peers, engagement with the discipline and future career orientation. At the time of the conference session on this workshop (2002), it had not yet been evaluated.

Oliver-Hoyo and Allen (2005) focused on a specific chemistry module within a US HEI. They modified the delivery to integrate lectures and practical work in order to generate a more active style of learning, with the aim of improving attitudes towards the subject. A comparative evaluation was integrated into their project, with analysis of pre and post-survey responses from students on the traditional module (lecture and practical) and those on the integrated module (113 and 48 students respectively). The responses indicated that the more active delivery style resulted in significantly better effects on attitudes and no increase in anxiety regarding the subject.

Orwin and Bennett (2002) presented an interesting conference paper addressing student resistance to curricular change. The aim of the change had been to increase student engagement by implementing a low-credit, hands-on, group-work engineering design course with a competitive element. But students had negative attitudes and the work produced as a result was poor. The authors suggested that the students expected to be the recipients of information and felt that there was insufficient reward for the workload. They concluded that it is important to understand and influence the expectations of students in the first year.

Two studies have aimed to identify innovative curriculum design practices in the UK by interviewing academics in varied subject areas (McGoldrick, 2002: 10 academics; Oliver, 2002: 8 academics). Examples of innovative practice included accredited introductory modules in study skills which emphasised independent and group tasks, with discussion and problem-solving to counteract previous emphasis on regurgitation of facts. Other modules have incorporated exercises aiming to address different viewpoints and the issue of short attention spans. Respondents discussed the creation of more space in the curriculum for thought and assimilation of information. They mentioned more formative assessment as a way of communicating standards and strategies for achieving them. However, the studies did not address evaluations of suggested or implemented strategies.

Although some have advocated implementing additional generic courses on study skills to facilitate transition into HE (Lines, 2005), others disagree. Harvey, Drew and Smith (2006) believed that the literature on support services suggested that the facilitation of learning skills should be 'embedded within the curriculum', rather than an add-on (p iii). This requires developmental use of learning, teaching and assessment strategies.

A wide literature base relates to learning strategies that aim to engage students. This was thoroughly reviewed by Harvey, Drew and Smith (2006), who identified studies that have aimed to improve the experience through active and collaborative tasks involving problem-based learning, development of study and learning skills, learning communities and an emphasis on e-learning. There has also been increased emphasis on personal development planning and portfolios in the UK, US and Australia (Meyer and Boulton-Lewis, 1999, cited in Lines, 2005). This may involve module activities, but is likely to be integrated with the entire course and careers beyond HE.

A fine line exists between curriculum design on a modular or programme level and learning and teaching strategies. For example, according to Harvey et al, 'research shows that students prefer student-centred, active learning rather than lectures. Problem-based learning, practical projects and team working seem to be effective provided the student is well prepared' (2006, p iv). These approaches could be seen to be learning and teaching strategies. However, they can be implemented strategically across the breadth of the programme, which makes them highly relevant to curriculum design at course level.

This could extend to the use of assessment throughout the first academic year. Yorke (2001) was highly critical of the use of assessment throughout the curriculum (cited in Lines, 2005). The use of early summative assessment with little or no formative feedback is common in the first three months of HE, but provides little opportunity for students to understand and adapt to academic expectations. Yorke suggested that this can lead to perceived under-achievement and need for reassessment, which is likely to impact negatively on further adjustment and assimilation. As for learning strategies, assessment should be viewed developmentally across the programme.

10.3.5.2 Curriculum design to engage or empower - course level

When looking at curriculum design at programme level, suggestions for and examples of innovative practices generally involve strategic use of learning, teaching and assessment approaches. They often have similar aims of improving social and academic integration and increasing independence and collaboration in learning. Several case studies demonstrate redesign of an entire curriculum in response to input from a variety of stakeholders, but rarely including students themselves. They often focus on identifying and developing the competences required for success in the discipline beyond graduation.

Barefoot (2002) summarised the findings of a US national survey of first-year curricular practices conducted in 2000. The survey had been sent to 621 randomly selected academics, 54 per cent of whom had responded. When describing best practice, the focus was on guiding module selection and choice of major. Learning communities were being promoted to ensure that students shared more than one module with the same group of peers, enhancing their collaborative learning and sense of belonging.

This issue may be less relevant in many UK programmes, where students often apply to study specific courses and are likely to share some core modules with their peers. However, the US survey identified further issues in relation to large class sizes and poor attendance, which are more likely to be in common with UK HEIs. Although many of our students are likely to be within 'learning communities', they may not be encouraged to maximise the potential opportunities that such communities provide. This is being addressed at Teesside University, which has been trying to develop learning communities, as described by Lines (2005).

The Skills Plus project, which promoted tuning curricula to enhance employability, stated that programmes should be viewed in relation to likely messages and processes (Knight and Yorke, 2002). Programmes should, therefore, strategically distribute a variety of teaching and learning approaches across the three or four-year course. These might include the use of different media, collaborative learning, formative and summative feedback, and clear explanation of expectations. Also advocated were space within the curriculum for deep learning and progression of skills development over the programme - for example, only assessing presentation skills in the fourth year when these skills have been developed over the preceding years. Sixteen academic departments participated in the Skills Plus project and reappraised their programmes based on these ideals, although no evaluation of the project was found within this literature review.

According to Beder (1997), at the time she was writing, one or two courses in the US had completely redesigned their first-year curricula to address the first-year experience, integrating learning activities with connected disciplines or encouraging a more problem-based approach (Olds and Miller, 1993; Johnston and McGregor, 1997, cited in Beder, 1997). However, she provided no further comment on the success of these approaches, both of which were disseminated in conference presentations.

Lines (2005) documented several case studies with similar aims. La Trobe University in Australia had redesigned a curriculum to encourage a sense of identification with the relevant profession, developing purpose, direction and greater understanding of the rationales for different modules. Ryerson University in Canada had felt the need to increase students' sense of connection with programmes. It evaluated the course load and sequencing, and redesigned the curriculum to promote learning and academic skills early in the course. London Metropolitan University had aimed to integrate learning development into subject-based teaching and core modules to build group identity, while implementing support and mentoring systems and PDP. However, this had not been evaluated at the time of Lines' report.

In 2006, Lines et al were involved in conducting case studies of architecture and nursing courses at Robert Gordon University, Aberdeen. A longitudinal study was carried out with first-year architecture students, using questionnaires, focus groups, reflective learning diaries and a learning styles inventory. Initial findings indicated that students had concerns regarding external pressures and time management, new ways of learning, and perceptions of the subject. As a result of this input, decisions were taken to make greater efforts to contextualise subject matter and to develop and implement a toolkit of strategies for developing independent learners. It will be interesting to see the results of further evaluation of these measures and evaluate their success in impacting on student engagement and empowerment.

Jantzi and Austin (2005) redesigned their nursing curriculum by first developing five overall competence themes based on professional documentation. They devised a curriculum to develop each of these competences over the four-year course. Students were evaluated for knowledge, skills and attitudes on entry to the course, by writing for 10 minutes in response to a specific prompt. They were introduced to the curriculum, which was explained in maps and diagrams. Students were regularly required to produce work that demonstrated relationships between specific activities and programme expectations. These assignments were documented as 'evidence of growth' in e-portfolios. Students were to be re-evaluated for knowledge, skills and attitudes at the end of the

course. None had reached this point at the time the article was written. Subjective feedback was reported from students suggesting benefits from reflecting on learning.

Kift and Nelson (2005) did not believe that it was enough to design or redesign a curriculum in line with current pedagogical principles. They advocated systemic, university-wide change to ensure that administrative and support programmes are integrated with the curriculum and in line with students' needs. Working at Queensland University of Technology in Australia, the authors developed six main principles for curricular renewal to enhance student engagement (p 230):

- creation of 'engaging learning environments' (for example authentic discipline-specific learning tasks)
- development of a long-term strategy rather than piecemeal modification, involving a view of the entire programme and students' needs
- curricular renewal with awareness of who students are, their weaknesses on entry, conflicting roles, and aims and goals
- design units to cumulatively develop skills and capabilities required on graduation
- ensuring that course and unit delivery facilitate reflection, independence and self-management to enable lifelong learning
- alignment of curriculum, administrative and support services to ensure an institution-wide approach.

Kift and Nelson then proceeded with a programme of research and implementation to ensure the application of these principles. First, they mapped current university-wide activities, identifying and trialling innovations and consulting with stakeholders to generate a staff development programme. They obtained ethical approval to involve 4,000 students in the development process, although detail on the nature of this involvement was not provided in their report (2005). This programme was described as a 10-year process of cultural and structural change, so the lack of evaluation is perhaps not surprising. Although interesting, strategies were presented in a journalistic manner and therefore it was difficult to identify specific evaluation. A short summary of student feedback suggested that students considered the redesigned first-year programme as successful, although the method of data collection was not presented in detail.

It is interesting that the majority of these suggestions and case studies did not strongly emphasise the involvement of students in curriculum redesign. The next section looks at student involvement in more depth.

10.3.5.3 Involvement of students in curriculum design

Few examples of curriculum design have overtly included students in the process. More emphasis seems to have been placed on consulting stakeholders, primarily employers, in the process of curriculum design. Teng and Shelnutt (2002) described a continuing process of involving local industries in the initial and ongoing design of their master's programme in Engineering Management (US). The feedback from industry was very positive, but the views of students or graduates were not sought.

Two Australian studies described how the focus of nursing curricula was redesigned in response to changes in the professional context, with the courses being designed accordingly. Perkins et al (2001) identified new influences on nursing roles and the

increased emphasis on primary care rather than acute. Professional documentation was analysed and interviews conducted with academics, clinical nurses, students and alumni. This led to a vision of the 'end product' of a nursing course - a nurse capable of operating well within the primary care context. As a result, competences were written which were to be developed through the curriculum. The process used was interesting, but evaluation of its long-term success was not presented.

In the second Australian study, Mann et al (2000) collaborated with a community health service to develop a four-year curriculum that integrated primary health care principles. The abstract did not provide much detail of actual curricular changes, although mentoring by community health nurses was included. The programme was evaluated for its effects on knowledge, understanding and employment opportunities. The first phase was presented, and critical outcomes demonstrated evidence of increased understanding in interviews with 22 students during their second academic year. Students also expressed greater engagement, empowerment and enthusiasm.

Two examples of overt student involvement were located that appeared to conceptualise the curriculum at the experiential and collaborative levels (C and D) identified by Fraser and Bosanquet (2006) (see 10.3.4 above). Lundstrom et al (1996) aimed to increase the quality of engineering design education in the US. They wished to increase student engagement, and redesigned a course on the basis that students would be treated as colleagues and would be involved in setting ground rules for grading policies and deadlines and developing learning objectives en route to 'terminal course competencies'. They continually administered 'use improvement surveys' to allow immediate quality enhancement. These principles are interesting and it would have been useful to see an evaluation of their efficacy in improving student engagement and empowerment.

The second example was found in a book providing guidance on developing participatory adult literacy courses in the US (Auerbach, 1992). This was a guide to facilitating students in the discovery of content relevant to their individual needs, focusing on individual contexts and situating their learning in relation to their experiences, values and priorities. Students were involved in decisions about what and how they would learn. The book did not include an evaluation of the approach, but it provides an interesting contrast to the predominant model of student involvement in UK HEIs.

Two studies have obtained qualitative and survey data relating to student feedback in the UK (Oliver, 2002; Davidson and Young, 2005) and one has reviewed the 'grey' literature of four UK HEIs, addressing their use of student feedback (Harvey, Drew and Smith, 2006).

In an LTSN-funded project, Oliver (2002) interviewed eight academics on their experiences of curriculum design. They explained that it was often necessary to first go through an orientation process, locating a module in the programme context and looking at the type of student attending. However, there was rarely consultation with students until the redesign stage. The discussions included reflections on past experiences of feedback from students. Where a curriculum had been redesigned during the progression of a course, some students were strongly resistant, inhibiting creative curriculum design. The academics did not always think that institutional and student feedback was helpful, as it was not always constructive and often displayed a lack of insight into the whole curriculum.

In their review of grey literature, Harvey, Drew and Smith (2006) found that module and course feedback was commonly collected, but not in a standard manner and not generally disseminated. They noted a lack of standard systems for ensuring its use to continually improve the student experience.

This was also the case in Davidson and Young's survey of current practices in Scotland (2005). They found that the collection of feedback for quality assessment was standard, but less so for quality enhancement. They concluded that institutions should not do more evaluation, but alter how they do it. Institutions should train students in the provision of constructive feedback and ensure collection of and response to feedback during a module, generally 'closing the loop' by reporting back to students. The authors suggested that feedback should be less formalised, with more dialogue and immediate response. However, this form of feedback would be less easily documented and used in rationales for change and disseminated for the use of others. Is this one reason for a lack of published work? In order to disseminate and evaluate their rationales for module and course redesign, academics would need to document their reflections on experiences and informal feedback.

10.3.5.4 Summary: the 'ideal curriculum design process'

Figure 1 synthesises the various principles and practices advocated in the literature that suggest an 'ideal curriculum design process'. This process may or may not be carried out before a course is initially validated, but is it possible prior to review or revalidation of programmes in the UK HE context? The shortage of work evaluating the principles or process of curriculum design leaves a lack of support for arguments presented to academic audiences, especially in the light of many conflicting influences on curriculum design. This literature review has so far identified several analyses of the current context and influences on the process of curriculum design. The next section addresses these influences and describes the current 'reality' of curriculum design in UK HE.

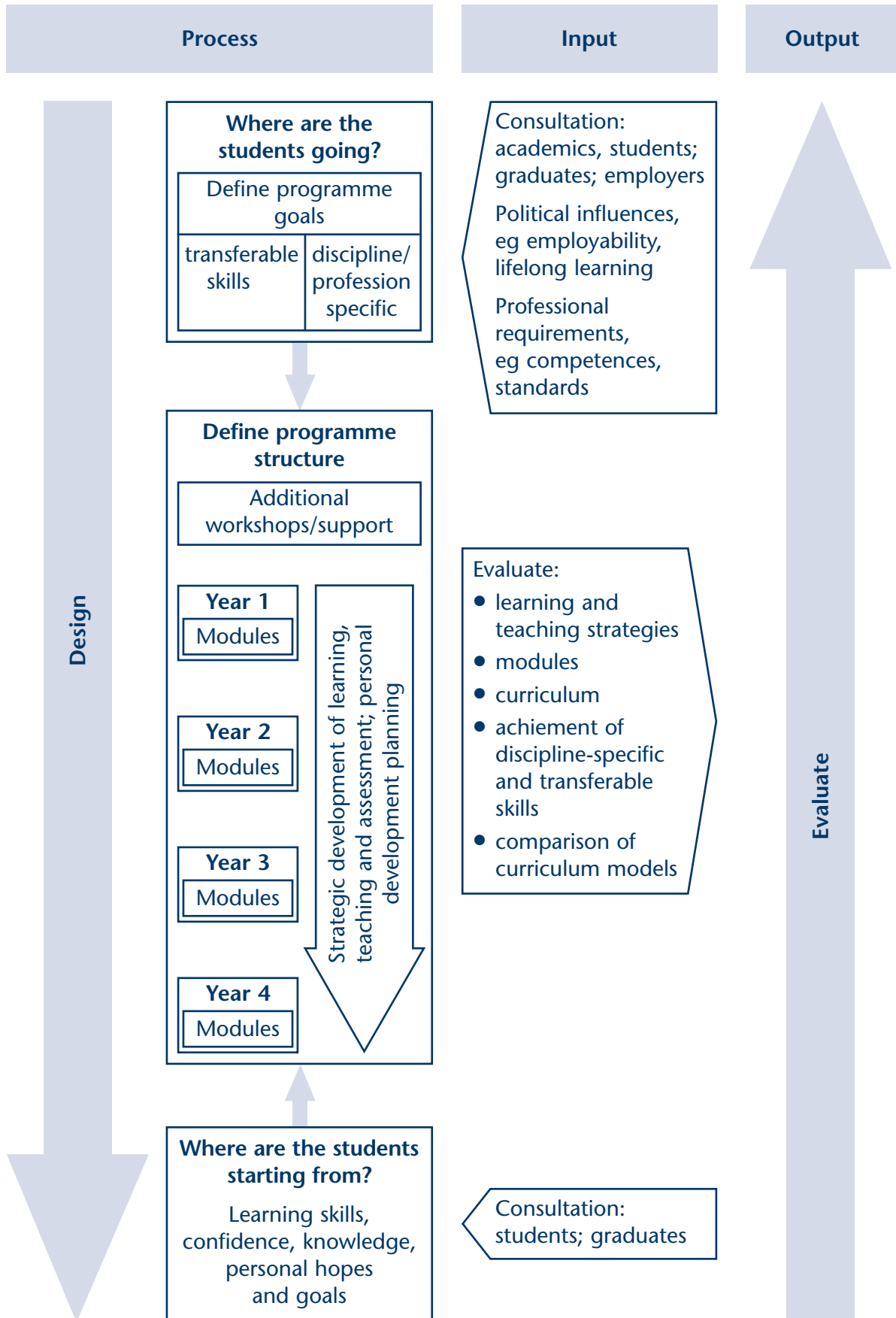


Figure 1: conceptual map of an 'ideal curriculum design process'

10.3.6 Curriculum design - current 'reality' and constraints

More than 30 years ago, Bousquet argued for increased student participation in the curriculum, focusing on the development of learning skills and capacities rather than on 'closed systems of thought' (Bousquet, 1970, p 42). He emphasised the importance of skills for lifelong learning in the context of a 'knowledge explosion'. However, he also described the effects of governance and national workforce requirements on the university curriculum. It seems that this has not changed. The HEA describes contexts for curriculum design and implementation as rich and diverse, but subject to many conflicts of interest (HEA, 2007).

Following a national review of curricular practices in the US, Barefoot concluded that: there should be high staff-student ratios in first-year classes, which should be delivered by experienced academics with support from senior students; learning opportunities should be cooperative and active, with provision of early feedback; and staff-student interactions should take place out of class. These ideals are likely to be viewed with some wry amusement by many academics. Several of these principles are subject to conflicts of interest within the UK HE sector, which has seen reducing staff-student ratios over recent years (Bourner, 2004).

These conflicting pressures lead to demoralisation of academics, demonstrated to some extent in several papers relating to constraints on the curriculum design process. Kift (2004) stated that it is not surprising that the majority of higher educators have not embraced the first-year experience concept: 'many of the more engaged teachers are stretched and change-weary; while the balance remain, as they always were, change-averse' (p 2). However, some see the different pressures as opportunities to be creative, while recognising the constraints faced.

Lines (2005) carried out a survey of Scottish academics to explore practices in first-year curriculum design. The poor return rate made conclusions tentative, but responses indicated that practices were highly variable. After interviews with eight academics, Oliver (2002) found that although in the literature the principle is to start from course aims and work backwards in the design of content and format, there was little evidence of this in practice, which was more influenced by pragmatic considerations and conforming to expectations. Oliver stated that: 'contrary to the rational models advocated in contemporary research, the accounts of participants in this study portray curriculum design as a social practice that involves orientation to historical precedents, accessible resources, local values and interpersonal micropolitics' (p 14).

The varied conceptualisations of curriculum described by Fraser and Bosanquet (2006) imply differences in the degree of control and power exercised by designers and providers of education. The implication is that reductions in specific documented structures and content provide more room to involve and collaborate with students in their learning, leading to greater engagement and empowerment. However, this flexibility appears to be influenced by a variety of factors, such as institutional and professional standards, employer requirements and quality assurance measures for HE. These can be differentiated into internal and external influences on curriculum design, summarised in figure 2 and discussed below.

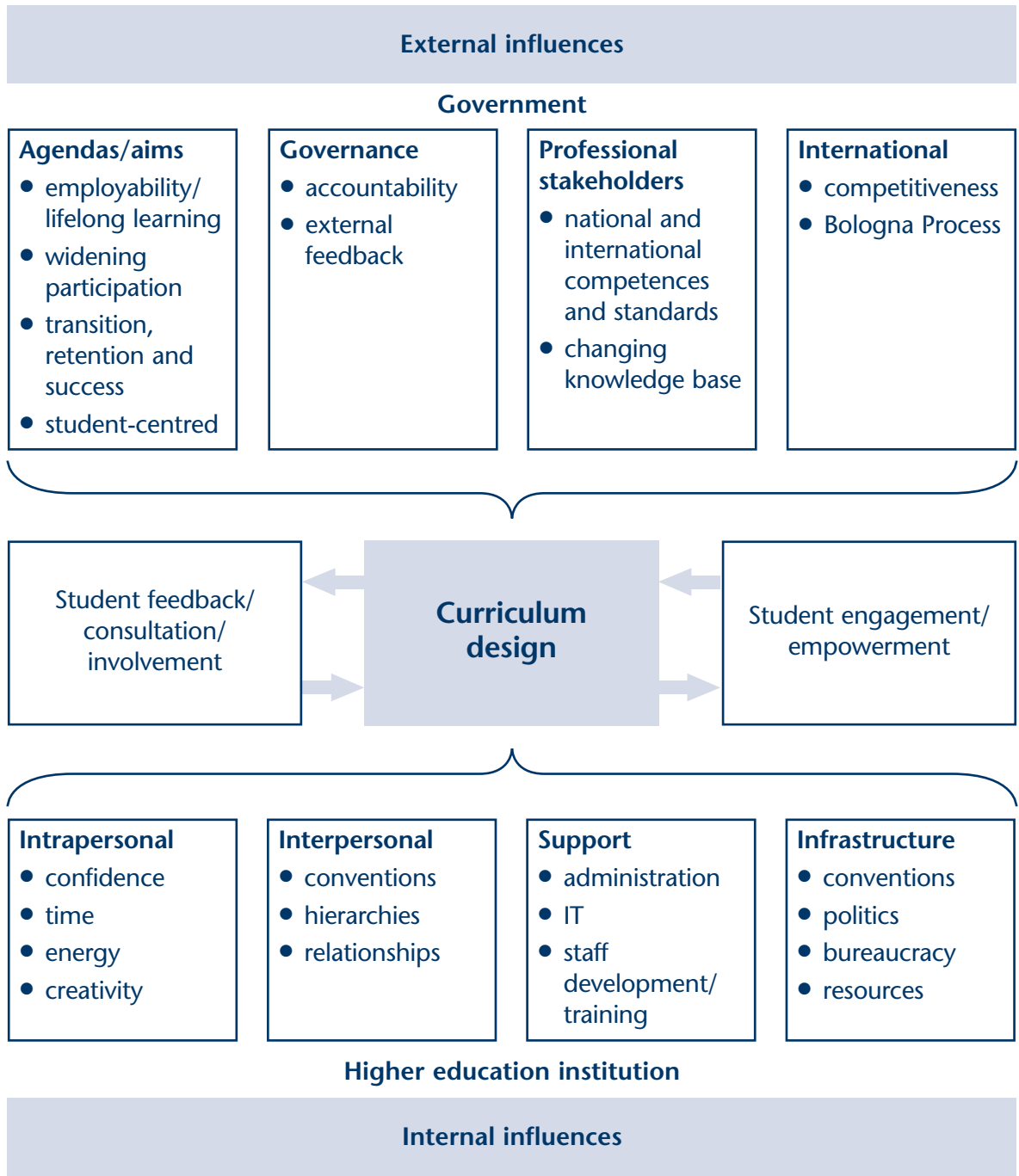


Figure 2: summary of influences on the curriculum design process

10.3.6.1 Internal influences on curriculum design

McGoldrick (2002) interviewed 10 academics, who described curricular change as constant and influenced by changes in the discipline, feedback from and observation of students, employability factors, professional bodies and resources. To be creative and innovative in curriculum design, enthusiasm and interest are needed not just in relation to the discipline, but also in relation to students and teaching.

The interviewees believed that academics are required to be flexible and critical of the status quo and of their own viewpoints. They need the confidence to listen to what students have to say, experimenting and revising strategies in response to evaluation.

Creative curriculum design cannot occur without good leadership, enabling open and flexible discussion leading to decisions. Suggestions included more staff development in relation to curricular issues, involving all team members, with space for brainstorming, integration of student feedback and peer involvement from other institutions.

The same academics described negative influences on curriculum design, including internal resistance from leaders or team members, lack of resources, high student-staff ratios, insufficient administrative and technical support, lack of staff development and issues of professional autonomy. McGoldrick summarised the major issues as erosion of morale and of 'space' for thought and implementation'. Both of these were thought to be at least partially counteracted by good creative leadership and management (2002, p 22).

Additional internal influences were identified in interviews by Oliver (2002). These included interpersonal, historical and organisational issues. The administrative processes required for even small changes (for example within a module descriptor) were so laborious that they led to inertia. Even infrastructure issues, such as the size or type of teaching room, could restrict change in curriculum design. Further constraints were similar to those previously mentioned, including over-commitment of staff and lack of resources. However, specific process issues were also emphasised.

Academics also described issues relating to delivery of modules and courses in large teams with a high turnover and lack of ownership. This could lead to a need for specific structures within the curricular content and provide less room for flexibility. There was also a lack of confidence in this context, which was less likely to be conducive to risk-taking. It was notable that many academics inherited courses, rather than designing them from a blank slate. This could lead to difficulty in engaging with the material and departing from existing conventions or expectations. The university framework was also felt to be inflexible, especially in relation to assessment. However, suggestions were made in relation to presentation of the curriculum for the benefit of internal and external authorities, while leaving room in the description for flexibility in delivery (Oliver, 2002).

10.3.6.2 External influences on curriculum design

McGoldrick (2002, p 1) described academic concerns regarding a 'contradiction of creativity'. In other words, there are many demands to improve curriculum design in order to increase global competitiveness, but there are constraints from limited resources, time, reduced professional autonomy, and changes in political and professional drivers.

When considering government influences on universities and curriculum design, Becher (1994) described three models of inter-relationships. The 'command' model specifies a highly directive role of the government, while an 'ideal' model emphasises HE as autonomous and trusted by the government. Becher believed that the UK has operated primarily within an 'exchange' model, where resources are provided by the government 'in return for services provided to society'. However, he identified increasing influences from the government on different aspects of university provision, such as emphasis on developing lifelong learning. These pressures may be exerted independently through professional bodies, but exist nonetheless. Bridges (2000) supported this analysis, describing the influence of the government in enforcing an agenda that relates primarily to increasing concern with economic competitiveness. Specific skills are required from the workforce and universities are involved in their development.

This governmental influence is not necessarily negative for the sector. As Knight and Yorke (2002) noted, although employability is an external pressure, it is not necessarily out of line with first-year issues; increasing skills for employability is also likely to increase success in the first year. In a 2004 article, Bourner aimed to explain these seemingly 'faddish' changes in the UK HE curriculum, contending that 'there is a coherence in these changes that is not always appreciated' (p 39).

However, academics may feel assaulted by different dislocated demands and be unable to see how they fit into a big picture, at least part of which could be in line with their professional integrity. Innovative curriculum design requires a broad view, and it may be too difficult for individual academics to see the 'map' of influences and negotiate a path through them that they can see as positive for their students.

Shaw (2002) identified a variety of external agendas and influences on curriculum design, including accountability, widening participation, increasing employability and lifelong learning, international competition, professional stakeholders and emphasis on students' ownership of their education. However, Shaw also discussed ways of meeting the challenge by encouraging curriculum designers to identify the different pressures and be creative in developing solutions that address multiple concerns effectively.

10.3.7 Critique and further directions

To summarise, the literature suggests that it is important to empower students by facilitating the development of transferable skills for learning and employability. It is also important to engage students, increasing their social and academic integration with the institution and their subject or discipline. Both of these aims may be best achieved through emphasis on student-centred, active learning tasks that increase independence and collaboration. Although learning, teaching and assessment strategies can be implemented just at modular level, they can also be viewed across the first year and the three or four-year course.

Several case studies took the stance of identifying core competences to be developed by the time of graduation, and then understanding the point at which students were on entry to the institution. Careful use of learning, teaching and assessment strategies could then facilitate the development of core competences across and between years. It was notable that there were very few examples of students being involved in the process of curriculum design, and far more examples of consulting employers.

The principles advocated in the literature are intuitively appealing, but were frequently promoted with a lack of evidence for success in practice. Several large and robust surveys related to student engagement, but the curriculum design literature more frequently involved discussions, opinions and descriptions of changes implemented, without evaluation. Numerous online conference papers and reports did not give detailed methodologies. It is possible that these were presented, or that the reports did not require this detail. However, it seems that such work rarely results in peer-reviewed articles with the useful detail of rationale, process and evaluation required for thorough understanding.

More research exists in relation to specific learning, teaching and assessment strategies, but evaluations of their use across the curriculum are needed. It is important to develop a case study that implements curriculum design principles in a thoroughly designed and

disseminated process, with an integrated evaluation that uses qualitative and/or quantitative research design.

This lack of research is likely to have several causes. McInnes stated that there are 'very few scholars specialising in the study of higher education', resulting in a fragmented knowledge base and lack of synthesis (2001, p 109). The frequent use of contract-driven researchers, who typically leave the subject matter behind, leads to a lack of in-depth papers disseminating and analysing studies which have been carried out. Although McInnes saw an increase in conference papers and publications relating to the first-year experience, reviews and evaluations rarely aimed to provide generalisable findings. When discussing examples of good practice, he stated that: 'there is little systematic research or evaluation on which to base judgments about the effectiveness of these programmes or their potential for adaptation in other settings'. This leads to a 'danger of building a 'massive but trivial literature'' (McInnes, 2001, p 112).

As well as analysing the credibility of information, it is important to be aware of the context of suggestions or guidelines before deciding on whether to implement them. McInnes stated that 'research on first year students from the United States does not translate as readily to the Australasian context as might be assumed.... US colleges have been explicitly concerned with the broad development of undergraduates while Australian universities have been more directly vocational and academic in their aims' (2001, p 100). Analysis of national priorities and agendas is relevant to the appropriate application of research.

It is also important to be aware of baselines from which principles are applied. For example, there is a strong message from US-based research that student-staff interactions should be increased. However, from what level should they be increased? Do UK-based courses compare favourably with the baseline or not? Individual courses within the UK differ as to student-staff interaction levels. It is important to have full information about concepts before applying guidelines.

The literature review revealed a lack of research into specific areas. Frequently, the assumption appeared to be that the first year refers to an undergraduate degree, despite the importance of improving persistence and performance in postgraduate courses. In a large Australian survey, Krause et al (2005) found that postgraduate and international students were frequently less satisfied than domestic students. McInnes (2001) also raised the issue of student diversity, calling for more research into its effects. He also suggested that comparative studies should be carried out, and that academics should make use of increased funding for international collaborations.

It is important to note the limitations of this literature review. The detailed search strategy is presented to enable the reader to evaluate its credibility and to enable other researchers to extend the search if required. The strategy used to locate literature was rigorous but cannot claim to have been exhaustive. The short timescale led to several limitations. Firstly, there was insufficient time to thoroughly cross-reference all the documents obtained. In addition, several inter-library loans were either unavailable or could not be retrieved within the timescale (Gershensen et al, 2002; Jollands et al, 2005; Reidsema, 2005; Savage, 2005). These article titles suggested that they might provide specific examples of curriculum design. Finally, when using search engines associated with different web pages, the first five pages of results were searched, after which results appeared to be irrelevant. However, this was not confirmed.

Despite these limitations, the literature review has demonstrated that more rigorous research is needed. The aim of the Quality Enhancement Themes is to improve education provision by communicating best practice in learning and teaching to academics in a variety of disciplines. As Bourner (2004) explained, 'teachers in higher education are the gatekeepers of curriculum change' (p 39). Many of these educators are actively engaged in critiquing and conducting research.

However, it is not enough to communicate principles that have intuitive appeal. Academics with many workload pressures and different interests must be convinced of the need to implement change, and arguments are more persuasive if supported by rigorous research. Most are accustomed to reading research as a basis for change within their disciplines. Without research-based support for suggestions, it is hard for academics to differentiate one suggestion from another in the multitude of agendas imposed by external authorities. If it is not possible to convince the people who are involved in curriculum design, the work will be wasted.

10.4 Conclusions

This review has identified much literature that supports the need to engage and empower students, increasing their persistence and performance over the first academic year and beyond. This is advocated for different reasons, including the need to maximise national and institutional competitiveness, and the development of individual students. Various authors have advocated creative design of the curriculum to achieve these aims, involving students in the process. However, there are fewer examples of practice and even fewer that include evaluation of the success of strategies or interventions.

In synthesising the literature there appears to be an 'ideal' curriculum design process. Students, graduates and employers should be consulted to inform the overall programme aim and to identify students' abilities on entry. A 'bird's-eye' view is advocated where discipline-specific and transferable knowledge and skills are developed within and across modules or units. Current pedagogical principles should be used developmentally to facilitate a progression of learning over the first year in particular and throughout the course. The success of this as an overall strategy should be evaluated in relation to student engagement and empowerment.

In contrast to the 'ideal' curriculum design process, literature relating to actual practice has suggested that most academics are overwhelmed by the different agendas being promoted in HE, and may lack the time, confidence and support to initiate change within current HE infrastructures. More rigorous research is needed to convince academics that a more creative approach is worthy of their time and energy, addressing national agendas, but also benefiting their students as individuals.

All references from this literature review are contained within the full list on page 31.

10.5 Annex: Combinations of search terms used in each database

Search words

- Ai:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "higher education" OR "university" AND "first year student*" OR "freshman" AND NOT school. Limit: 1996-2007; all document types; search in article title, abstract, keywords.
- Aii:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "higher education" OR "university" AND NOT school. Limit: 1996-2007; all document types; search in article title, abstract, keywords.
- Aiii:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "first year student" OR "freshman" AND NOT school. Limit: 1996-2007; all document types; search in article title, abstract, keywords.
- Aiv:** engagement OR empowerment OR involvement OR consultation OR feedback AND "higher education" OR "university" AND "first year student" OR "freshman" AND NOT school. Limit: 1996-2007; all document types; search in article title, abstract, keywords.
- Av:** search for publications by specific named presenters identified through a search of relevant websites.
- B:** engagement AND curriculum AND design AND higher AND education OR university NOT school 4874 ranked by descriptors → selection on 1 thesaurus item: 'University Curriculum'.
- Ci:** use of thesaurus → first-year-students AND curriculum-development AND feedback.
- Cii:** use of thesaurus → first-year-students AND curriculum-design AND feedback.
- Ciii:** use of thesaurus → first-year-students AND curriculum-development.
- Civ:** use of thesaurus → first-year-students AND curriculum-design.
- Di:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "higher education" OR "university" AND "first year student*" OR "freshman" NOT school. Limit: 1996-2007; all document types; search in all fields.
- Dii:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "higher education" OR "university" NOT school. Limit: 1996-2007; all document types; search in search in all fields.

- Diii:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "first year student" OR "freshman" NOT school. Limit: 1996-2007; all document types; search in search in all fields.
- Div:** engagement OR empowerment OR involvement OR consultation OR feedback AND "higher education" OR "university" AND "first year student" OR "freshman" AND NOT school. Limit: 1996-2007; all document types; search in search in all fields.
- Dv:** "curriculum design" AND university AND engagement.
- Dvi:** "curriculum design" AND university AND empowerment.
- Ei:** use of thesaurus → curriculum design AND student attitudes.
- Eii:** use of thesaurus → curriculum design AND student evaluation.
- Eiii:** use of thesaurus → curriculum development AND student attitudes.
- Eiv:** use of thesaurus → curriculum development AND student evaluation.
- Ev:** use of thesaurus → curriculum design AND student attitudes AND student evaluation.
- Evi:** use of thesaurus → curriculum development AND student attitudes AND student evaluation; search in title and abstract only.
- Fi:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program design" OR "curriculum development" OR "program development" AND "higher education" OR "university" AND "first year student".
- Fii:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program design" OR "curriculum development" OR "program development" AND "higher education" OR "university" NOT school. Limit: 1996-2007; all document types; search in all fields → full search list does not appear to lead to appropriate results, therefore - separate out all combinations of terms.
- Fiii:** all combinations of terms in Fi as separate input. Limit: 1996-2007; all document types; search in all fields.
- Fiv:** all combinations of curriculum design/development, or programme design/development, and student empowerment/engagement; "curriculum design" AND "student engagement"
- G:** engagement OR empowerment OR involvement OR consultation OR feedback AND "curriculum design" OR "program* design" OR "curriculum development" OR "program* development" AND "higher education" OR "university" AND "first year student*" OR "freshman" AND NOT school.

10.2 Appendix 2: Full case studies

Case study 1

Key contact	Simon Bates
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Subject/discipline	physics; first-year course entitled Physics 1A: Foundations
Students	Scottish Credit and Qualifications Framework (SCQF) level 8. Approximately 250 students each year; of these, 50 per cent reading for degrees other than Physics.

What did you do?

The first-year course Physics 1A: Foundations is a first semester introductory course in classical physics, taken by approximately 250 students each academic year. It has evolved over a period of eight years into a truly blended learning delivery, marrying the best of the face-to-face experience for students with the opportunities offered by digital media to support their study on the course. The course, as the name suggests, is the foundation for later study. As the first course encountered by students at university, it also serves as a clear exemplar of how they are expected to take responsibility for their own learning at university.

The bulk of the early development comprised the creation of a set of interactive online resources to support - not replace - the teaching on the course. Some of these were home-grown (for example a large bank of multiple-choice question self-tests) and some imported from elsewhere (for example applets, simulations, videos). The structure of the online content facilitates a degree of personalisation of the route any given student might take, in either breadth or depth of topic coverage. The content is organised in small chunks and is highly cross-linked, allowing users to exploit the inherent nonlinear navigation routes possible online. This is one of the ways in which we aim to engage a heterogeneous cohort, who have different aspirations and expectations from the course.

This 'personalisation' is really just the ability students have to navigate through the online material we provide for them, allowing them to take a path through the content that suits their needs, requirements and interests. In this respect, it is one thing that differentiates the online content from static notes (for example in pdf, ppt or .doc formats) or pages of sequential hypertext (the pathway through which is limited to 'next' and 'back' buttons). Though not infinitely flexible, a study we undertook to track how students have used the online materials provided good evidence that they do follow very different paths. This study was published in vol 2 of *Learning and Teaching in Higher Education journal*, 2007-08; the preprint is available towards the bottom of the webpage: www.ph.ed.ac.uk/elearning/projects/physics1a/.

Rationale

At the time we began this development (in the late 1990s), the possibilities offered by using online media to support face-to-face teaching were beginning to open up. Wanting to explore ways of using online resources to support face-to-face teaching, we began to take tentative steps in this direction. Even at that time, we felt sure there was more potential in the online environment than simply a digital filing cabinet for pages of sequential hypertext.

We were also aware of the changing topology of the student cohort. The background study of the subject by entrant students was becoming more diverse, student numbers were increasing, and many of the students entering the degree programmes would go on to careers that did not require explicit physics knowledge. Recognition of and a willingness to respond to these changing boundary conditions, on entry and on exit, still underlines much of our first-year developments.

Student engagement

A good example of student engagement is the use of an electronic voting system (EVS) in lectures. It was introduced two years ago for this course (having previously used the low-tech option of coloured cards). The EVS has proved immensely popular with students and has had a marked effect on the dynamic of lectures, making them feel much more like collaborative learning events rather than one-way information transmission. Students are actively engaged in the process of the lecture and feel that they are participating in it as it develops. Student learning can be addressed directly by using these teaching episodes to highlight (and correct) collective misconceptions and problem areas within the course material, and adjust delivery or subsequent sessions accordingly.

The above is a good example of how the platform of rich, interactive online content described earlier has enabled this technique to be adopted with relative ease. Devoting lecture time to these episodes invariably means a reduction in content covered during the lecture, so the content must then be available elsewhere for the students. It may be covered in a different teaching activity, or as part of a course text for self-study, or as additional material which can be placed online (as we had done already). We have successfully used the notion of a 'learning contract' with the students, communicating the clear expectation that if we spend lecture time doing interactive exercises, this means we do not cover the required content. They are required to use the online resources to cover the remainder of the topics.

Student empowerment

Empowerment of students is embedded in a variety of activities, including the concept of a 'learning contract' described above. Another area where we have sought to empower students is by replacing weekly tutorials and laboratory sessions with a teaching activity we call workshops, which focus on collaborative learning. In these workshops, students work in small groups of around five on a range of activities. Some involve group working on problem sets, others on mathematical skills or challenges, or simple experimental measurements.

This development was originally undertaken in 'make-do' accommodation, usually in a laboratory, but has since driven changes in redeveloping the university estate. Bespoke 'teaching studios' were created as part of accommodation refurbishments. Students have responded extremely positively to these sessions since their introduction, welcoming the dimensions of working with peers and learning from each other.

Student involvement

Aside from the regular course feedback questionnaires for obtaining student feedback (and hence driving changes for subsequent years), we have made extensive use of focus-group interviews over the past couple of years. These focus groups were originally to evaluate the introduction of the EVS into large class lectures, with a view to maximising the effectiveness of this system. In most cases though, student feedback informs subsequent developments in the course for the following year. Future developments which we have planned extend the possibility of involving students in curriculum design, by including them as creators and collaborators for the production of learning content (see below).

Evaluation of curriculum design

We have tried to evaluate the design of the curriculum on several levels. We make extensive efforts to collect student feedback, both during and immediately after the course. (Coincidentally, we have found that the EVS provides an excellent method for capturing high-volume, real-time feedback from students during the course.) Students are very positive about the course; indeed, they now ask for elements of it to be present in other courses, both within and outside the School of Physics. Examples of this include the widespread adoption of the electronic voting handsets and the introduction of workshops in other courses.

On a broader level, we have documented and disseminated much of the design of the course and the teaching activities within it, from a practitioner's point of view (see [next page] for link to articles and other publications online).

Useful lessons for others in the higher education sector

The use of techniques for interactive engagement in lectures (the aforementioned electronic voting systems) can be - and has been - transferred to many other disciplines. In terms of the online resources, the most readily transferable successful element has been the provision of online materials that are more than simply a repository of notes on the web.

Facilitating factors in progressing first-year curriculum design work

One of the most important and crucial factors underpinning the success of these developments was the decision by the School of Physics in 2004 to recruit an 'IT development officer' to an open-ended contract. At the time, we barely knew what to call this post; nowadays it is much more commonly termed an 'e-learning developer' or 'learning technologist'. We now employ two such people and their skills and contributions are vital to our enterprise.

Barriers to progressing first-year curriculum design work

In a traditional research-intensive university, it has sometimes been a challenge to sustain these developments and take them forward in the midst of many competing pressures for the most precious of workplace commodities: time and energy.

Dissemination of this work

We have extensively published and disseminated the outcomes of various projects as articles, conference presentations, screen-casts and a blog. All are collected together at www.ph.ed.ac.uk/elearning

Other observations

We are continuing to develop the online resources associated with this first-year course. One such development, which we are in the process of implementing for the following academic session, is to deliver lecture material to students in a wiki environment, allowing them to collectively (or individually) personalise the electronic material by adding comments, notes or clarifications. This approach to transferring a degree of autonomy onto the students regarding the development and enhancement of the learning materials is an experimental venture we are keen to try out.

Case study 2

Key contact	Jane Brown
Institution	Napier University
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Subject/discipline	Pre-registration Nursing Programme: Common Foundation Programme
Students	All students studying at SCQF level 7 in their first trimester in year 1. 500 students a year study this module as we have two intakes of pre-registration nursing students in an academic year.

What did you do?

My activity has been as a leader at module level. This module (HS 12048) is one of four core modules that make up the first trimester for first-year students on the Pre-Registration Nursing Programme. The students are taught in large groups, and I started to make changes to the course design in 2000-01.

The first change was to focus the module's learning and teaching strategy on adult learning, student engagement, the learning process and outcomes. To provide continuity for students, I introduced a strict module structure each week, including discussion groups with the same lecturer, who also became the students' academic adviser for the module. Teaching input and assessment were mapped against module learning outcomes corresponding to the weekly classes.

The students were given a comprehensive module handbook detailing assessment, supervision guidelines and specific learning outcomes for each week's class. Creative academic support and considerate timetabling were used to support students with caring responsibilities and to allow flexibility for different learning styles. The assessment strategy took the form of a learning log. Students submitted nine short pieces of work (150-200 words) for the log relating to the module learning outcomes. I introduced strict but creative and fair guidelines for academic support because of large student numbers.

Rationale

I adopted this approach because when I took on leadership of the module the major challenges were as follows:

- large groups of students (250+) per semester
- students' and lecturers' perceptions of the module content were confused
- the assessment strategy did not cover all the module outcomes and student performance was poor
- the module was seen as unrewarding to teach because of the large groups
- non-attendance: students were voting with their feet

- the core module was perceived as 'servicing' other nursing programmes and to have low status because it was a first-year module.

The rationale for the learning and teaching strategy was to:

- encourage students' confidence (students knew what was expected of them from week to week regarding rooms, lectures and teaching staff)
- introduce a range of learning activities giving students the early opportunity to interact with peers and build relationships with lecturers
- enable students to engage with module material, learn from their own experiences and appreciate how these are relevant to future roles
- promote group interaction across branch programmes and allow students to clarify their values
- enable students to anticipate and interact with module content and take responsibility for their own learning.

The rationale for the assessment strategy was to:

- promote early engagement with assignments
- make the relevance of assessment to module content clear for students
- promote early information retrieval and technology skills
- allow early identification of students with special needs or particular problems
- support students' success at early stages in their programmes.

Student engagement

The module handbook is used throughout the module to encourage students to engage with the module content and take responsibility for managing their own learning, to promote the transferable skill of self-management. For the learning log, I deliberately chose articles or tasks for students to summarise or make comment on that are at an appropriate level for their understanding, and are topical and relevant to all the branch nursing programmes and easy to access from Napier University libraries and the internet. This encourages engagement with the assessment by stimulating interest. The questions are also designed to promote class attendance.

A major focus of the log is to promote early development of the transferable skills of academic writing, information retrieval and technology skills. To accompany the learning log, we have developed over time comprehensive supplementary guidelines which are helpful to students. These have been devised as a result of student evaluation.

Student empowerment

Class contact time is three hours each week. I ensure that the same lecture theatre and classrooms are available each week for the students, and try to ensure that the same lecturer facilitates the same group activity sessions each week. The rationale for this is to enhance students' confidence in their new setting and thereby encourage effective communication with their peers and lecturers at an early stage - an important transferable skill.

In the activity sessions with students, the teaching methods employed require them to learn in a thoughtful, responsive manner in cooperation with others. The key transferable skills promoted in this part of the module teaching are the abilities to clarify personal values, learn independently and cooperatively, listen actively, persuade rationally, and work productively in a group.

The module team are experienced lecturers who are passionate about their subject. The team's approach is consistent, we enjoy listening to the students, and through skilful facilitation we demonstrate to them how much we value and learn ourselves from their contributions.

Student involvement

Student feedback has been used to improve and refine the module.

Evaluation of curriculum design

The main methods used for evaluation have been student feedback and assessment results. Student feedback comments include the following:

Tutorials were on a more personal level and easy to do group work. Made me think more about the different aspects of health. Learning other views, seeing my views differently. Changing my attitudes. Made me think and consider controversial topics. I liked the fact that it was a one-hour lecture, then an activity group afterwards, it made it more interesting and fun. Was fun and lecturers made you feel welcome and learned a great deal. I enjoyed the way it was presented as a fun/easier learning log. It broke the workload down and made it easier to complete. I found the academic support excellent and the classes were very well organised. Feedback for academic work was useful and quick. I was offered guidance and help in my learning.

With the old module assessment tool there was a failure rate of 13.5 per cent and a mean mark of 51 per cent. On first running the new module assessment tool, we had a failure rate of 1.6 per cent and a mean mark of 70 per cent; subsequent results have been similar. The learning log has enabled students to succeed early in their course - an important contribution for student retention.

Useful lessons for others in the higher education sector

The learning, teaching and assessment strategy of the module could be used elsewhere. It has also been helpful to have a team of experienced lecturers who are committed to working with first-year students and can empathise with their difficulties. It is important to be creative, clear and fair when implementing academic strategies/ground rules, particularly with large groups of first years, to enable students and staff to enjoy the learning experience.

Facilitating factors in progressing first-year curriculum design work

The most help has come from the Educational Development Unit at Napier. The Unit has valued my work and encouraged me to continue developing the learning, teaching and assessment of the module with the first year student experience in mind. Becoming a Teaching Fellow, an honorary award at the University, in 2004 also helped. It enabled me to raise the profile of first-year learning and teaching, especially with large groups, within the School.

Barriers to progressing first-year curriculum design work

The main barrier has been attitudinal. I have had difficulty in the past getting my concerns heard, as first-year teaching is perceived as having low status. First-year core modules are seen as 'servicing' separate degree programmes and as making the best of a bad job. They are often allocated to the most inexperienced or least able lecturers.

Dissemination of this work

Napier University staff conference:

www.ed.napier.ac.uk/staffconference/june2006/workshops/brown.htm

Brown, J (2005) Creating learning experiences in a large first-year module that encourages student integration and early student success, *Royal College of Nursing Joint Education Conference*, Harrogate

Brown, J (2007) Large-group teaching and the first year experience, *20th International Conference on the First Year Experience*, Hawaii, USA (withdrawn because of lack of funding)

Other observations

A particular challenge with the module has been in providing academic supervision and feedback according to students' individual needs in such large groups with a small module team. The assessment is not a standard essay and for the students it is their first experience of a written assessment in their chosen nursing programme. Feedback to students in this module is both formative and summative. The module takes a flexible approach to offering formative feedback, recognising that students have different styles of learning and communication, are very new to the university, and may also find it difficult to approach the lecturing staff.

Formative feedback to students is offered in three ways during this module:

- a named academic supervisor being available after class for students to hand in work and get feedback a week later
- email contact with the named academic supervisor; feedback is within five working days
- attendance at learning log preparation and finalisation sessions; feedback is immediate.

During the first week of the module, students are asked to sign up with their named academic supervisor. The rationale for this is for lecturers to be aware of students in their group and so that they can keep a record of who is seeking support. The nature of the assignment means that a lecturer should only have to read and give feedback on parts of the log totalling 150-200 words.

As a teaching team we have found that this system works well, and (through evaluation) that the students are happy with the support offered. We have also found over time that students are increasingly seeking individual guidance through email. This method is encouraged, to promote early interaction with the IT that Napier University has to offer. I have found it rewarding to see how quickly mature students, who perhaps do not have the initial skills with email, respond to this particular method of supervision and become proficient and confident with the email system.

Case study 3

Key contact	Eurig Scandrett
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Phone	0131 317 3729
Subject/discipline	environmental justice (School of Media, Communication and Sociology)
Students	SCQF level 7 (Higher Education Certificate). Two intakes per year, 18-month course, around six students per intake.

What did you do?

The Higher Education Certificate in Environmental Justice was introduced as part of a project run by Friends of the Earth Scotland (FoES) to support communities tackling local environmental problems by building the capacity of key activists. The educational component was derived as a collaboration between FoES and QMU to provide sustained learning that was both academically rigorous and practically useful, with strongly reflective interactions between the two. The first presentation of the HE Cert was through residential weekend courses, with the support of a grant from the National Lottery. Subsequently it has been delivered entirely or partially through distance learning.

The pedagogy followed the methods of Paulo Freire, in that students' own experiences of environmental problems and mobilising to tackle them were taken as the foundation for dialogue with other forms of knowledge - the campaigning experience of FoES and the academic knowledge base of QMU. Modules were integrated throughout the programme.

Rationale

This Certificate has been an attempt to build a relevant curriculum out of a partnership between a social movement and a university. Friends of the Earth Scotland works with community campaigns around environmental justice, but had limited capacity to provide extensive education over a sustained period. Queen Margaret University has a stated commitment to supporting quality education relevant to communities and widening access to higher education resources. The educational philosophy and methodology of Paulo Freire require the educator to take a partisan position on the side of those who are oppressed, and build a curriculum through dialogue between the knowledge of the student and the knowledge of the teacher. Together, these approaches have proved fruitful in encouraging in QMU a degree of accountability to movements for progressive social change.

Student engagement

Students on the Higher Education Certificate in Environmental Justice are required to be involved in a community-based or trade union campaign or project. They present this project to other students at induction and the tutor guides the discussion into progressively more analytical questions (using Freirean methodology). The generative themes resulting across the group provide a basis for interpreting environmental justice. These are linked into relevant parts of the existing curriculum or added to through further inputs. The campaigns and projects become the focus of teaching, learning and assessment throughout the course, and students learn from each other - in person or via WebCT - as well as from course material.

Student empowerment

Students are expected to be engaged in community campaigns and to bring their study into these campaigns. Support is offered primarily by FoES and other non-governmental organisation partners in the campaigns and community activities. A high level of flexibility is offered for project work, assessment media and even chronology of modules. Residential students are also able to organise independently of tutors to influence the design of the course. Regular feedback has led to progressive modification of the course.

Student involvement

As indicated above, students are involved in dialogical methods to design the curriculum on an ongoing basis. In addition, course materials have been selected and partially written by students; see *Voices from the Grassroots* (2003), Agents for Environmental Justice, edited by Eurig Scandrett:
www.foe-scotland.org.uk/publications/HB4_Voices_from_Grassroots.pdf

Evaluation of curriculum design

The first presentation of this course was externally evaluated. Subsequent presentations have been evaluated more informally and on an ongoing basis.

Useful lessons for others in the higher education sector

Collaboration with social movement organisations has proved extremely useful in developing relevant curricula at different levels.

Facilitating factors in progressing first-year curriculum design work

The work was initiated outside the university by FoES. It was made possible by sympathetic individuals in QMU seeing its potential and knowing the university structures, which enabled them to find ways around the more intransigent parts without losing the quality. Some immensely helpful people in both academic and administrative roles have made it work. They could see, and were motivated by, the educational value and social justice of this approach.

Barriers to progressing first-year curriculum design work

The methods used in this course require students to have some context to bring to the curricular dialogue. Many first-year students come to university very young and inexperienced. While all students have context, many younger ones need a degree of conscientisation in order to take the next step of critical education (Freire, 1993).

The other major barrier is class size. These dialogical methods are difficult in groups above about 25 students. Many first-year classes in universities are over 100 students, a majority of whom are aged under 20 and inexperienced. For this course, the ideal scenario involves attracting more mature learners with life experiences on which they can draw for their learning.

A final set of barriers were created by university structures, especially (but not solely) on the administrative side of QMU. Problems of admissions, finance, publicity and registry were all encountered. Sections of QMU seemed more motivated by protective rules than by educational value.

Dissemination of this work

Wilkinson, M and Scandrett, E (2003) A popular education approach to tackling environmental injustice and widening participation, *Concept*, 13(1/2) pp 11-16

Scandrett, E, O'Leary, T and Martinez, T (2005) Learning environmental justice through dialogue, *Proceedings of PASCAL conference: Making Knowledge Work*, Leicester: National Institute for Adult Continuing Education

Case study 4

Key contact	Roger McDermott
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Subject/discipline	computing and mathematics
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Students	Compulsory introductory programming module for all first-year computing undergraduates in the School of Computing. Students are studying for different BSc degrees (computer science, specialist graphics and animation, internet and multimedia, computing for business and ecommerce).
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Eighty students on undergraduate programme; the majority are Scottish school-leavers, with some mature students entering directly or via a pre-semester access programme.

What did you do?

This case study describes the attempt to change how students perceived the subject of computer programming, and to introduce divergent assessment practices into a first-year introductory module. In this context, divergent assessment was taken to mean any assessment practice that does not have a particular, unique answer, but allows students to generate their own individual solution, which - while fulfilling the formal assessment objectives - would also give the opportunity for self-expression and creativity.

We were interested to examine whether, within a module with fixed learning objectives, assessment practices could be identified that would allow students some creative freedom with which they could demonstrate achievement of the learning outcomes.

The study made use of a 'microworld'-type programming environment called Alice, which allows students to control objects in a virtual 3D world. These worlds can be populated with a wide variety of characters which are then used in an animated story, the narrative of which depends on the actions programmed by the student. An important claim for such software is that it facilitates a change in the underlying subject metaphor from one based on implementing mathematical algorithms to one based on storytelling. This helps to engage the imagination of students and enables them to see the subject in a new and accessible way.

The module's main assessment exercise required the construction of a program that included a set of appropriate control structures, given to all students. However, the narrative itself was left up to the individual learners: it could be a retelling of a fairy story, the plot of a movie or an interactive game.

The approach was initially applied within one module, but the success of the study has contributed to the redesign of the whole first-year structure, with an emphasis on integration of content and assessment across more fluid modular boundaries. The redesign of the first year is intended to provide a suitable foundation for the progressive

redevelopment of subsequent years of study, based on the same set of enhancement principles - a focus on student-centred learning and structured incorporation of learning skills through portfolio-based assessment and PDP.

Rationale

The introductory module was perceived to be problematic, primarily because of a lack of student engagement with the module content. Achievement for 'at-risk' students was considered low, and over a number of years there had been a progressive reduction in academic expectations - which had obvious implications for subsequent modules. Investigation of student attitudes revealed that one de-motivating factor was the widespread belief that strong mathematical ability was a de facto prerequisite for success in the subject. This had been reinforced by the (fairly standard) choice of pedagogical examples used in the module, which often involved programming simple numerical or textual algorithms.

Apart from the negative affective reactions accompanying this belief, students perceived such tasks as extremely linear and convergent. This contributed to a problem with assessment strategy, especially assessments with a well-defined or fixed outcome. Many students interpreted these exercises as merely requiring reproduction of some unique, hypothetical model solution, without any personal creative input. This quasi-mechanical attitude led to feelings of boredom and disengagement.

Student engagement

An important factor in engaging students was the use of the Alice graphical software tool, which presented the results of running a program as an animation. This meant that students were easily able to visualise their efforts and gain instant feedback from changes to program structure. Equally importantly from a pedagogical perspective, it opened up a wide range of ostensibly **non-mathematical** programming scenarios, which were found to be more accessible to students. At the very least, these served to indicate that - although important - the links between mathematical competence and programming skill were more subtle than they may have thought.

Student empowerment

The choice of a divergent assessment exercise was a key part of the overall module strategy. Students, especially weaker ones, felt that a lack of mathematical skill within the context of an over-constrained assessment regime significantly reduced their ability to assimilate the subject. One aim of the project was to introduce the idea that an important determinant for success was the exercise of students' own imagination to incorporate the appropriate technical features into the student-generated narrative. Students were motivated to implement relevant control structures and algorithms because these were required by the narrative they had created, rather than because the assessment formally required it.

Student involvement

Feedback from students has formed an important part of the module evaluation. The views of first-year students were sought at the end of the first semester and also towards the end of the programming module. The reason for this was that teaching staff were very interested in how the skills and competences developed in this first (non-standard) exposure to programming carried over to a situation in which students were required to develop programs in a more conventional, text-based coding environment.

Student feedback indicated a strong desire to integrate more closely the modelling aspects of the curriculum with the software development, in terms of both mathematics and systems analysis, in order to make these subjects more relevant to the real world of software engineering. Previously, the modelling process was taught in a way that was divorced from its practical software development context. Hence integration was a motivating factor in developing a first-year course structure based on two-semester modules with strong curricular and assessment linkages between them.

Evaluation of curriculum design

Two types of evaluation have been carried out: qualitative and quantitative evaluation of learning, and qualitative evaluation of student attitudes to the module.

The investigation into improvements in learning concentrated on students' ability to retain and apply the programming techniques learned in this module to a more conventional, text-based coding environment used in the subsequent programming module. Qualitative evaluation took the form of informal interviews with students, whereas preliminary quantitative evaluation involved non-parametric statistical analysis of responses from questionnaires. The investigation into students' attitudes towards the module was done through interviews with students.

These evaluations indicated that, as well as students finding the module engaging, embedding the programming aspects of the curriculum as part of a structure that stresses narrative and control supports the acquisition of higher-level learning. They also indicated that these skills can, with care, be preserved and used beyond the original context.

Useful lessons for others in the higher education sector

While this case study may appear to have been concerned solely with the technicalities of elementary programming, its positive lessons may be transferred to other subjects. Chief of these is the usefulness of providing opportunities for divergent assessment. If done correctly, this can not only provide evidence of higher-level cognitive skills, but can also enthuse and excite students bored with overly-convergent, closed tests.

Facilitating factors in progressing first-year curriculum design work

The most important factor in the success of this work was the identification of a suitable framework in which divergent assessment practice could be implemented in an appropriate way. The storytelling approach naturally lent itself to this kind of process whereas the older, algorithmic approach did not.

Barriers to progressing first-year curriculum design work

As mentioned above, divergent assessment is difficult to implement unless there is a natural framework for its use, which allows students to incorporate the required aspects of the test in a larger, more personal construction. This is not the situation currently existing in most areas of computing. Considerable effort would be needed to reconfigure conventional assessment instruments to this form. The main challenge is to find suitable ways of incorporating this mode of assessment in other parts of the curriculum.

Dissemination of this work

Initial findings from this study were presented at the CAL'07 conference at Trinity College, Dublin. A further paper was accepted for delivery at the 2007 HEA Information and Computer Science conference at the University of Southampton.

Other observations

One aspect of the work that has not so far been stressed is its applicability to the study of computing and information systems at secondary school level. One reason for the current low entry numbers into undergraduate computing courses appears to be that pupils perceive the work done in schools to be too abstract, with little relation to the exciting recreational aspects of the subject (such as multimedia and gaming), which they experience outside formal education. The changes in teaching style mentioned in this case study may be a way in which pupils can be encouraged to think of computing as a highly creative art, which may promote the subject for study at tertiary level.

Some of the teaching initiatives - such as the formal partnering of the assessment of technical modules with ones that promote learning or project management skills - have been trialled in more advanced years, with the specific aim of learning relevant pedagogical lessons prior to implementation in the first year. It is anticipated that other small-scale trials of pedagogically innovative practices, which regularly occur in later years, may well provide input to further enhance the first-year experience.

Case study 5

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Subject/discipline	biological and environmental sciences
Students	Approximately 180 students.

What did you do?

The first year in environmental science and in biological sciences was redesigned in 2002-03 at programme level. Since then, the first year has consisted of six modules that form a common foundation to many of our programmes. The biggest change was the introduction of two modules entirely dedicated to practical laboratory and field skills and the associated underpinning theory. These modules follow the format of one lecture plus one three-hour practical per week, where the students work in small groups. Assessment is via a series of small weekly practical reports and two laboratory-based exams, with emphasis on examining practical skills such as use of equipment and identification of organisms. Students only receive credit for the module if they can demonstrate that they can practise all the skills in the laboratory or field.

In environmental science, the first and second-year modules were restructured to emphasise current global environmental issues, which are explored in terms of the underlying science, social and economic aspects and potential solutions. To ensure that key skills are taught and practised, a matrix of skills versus module components was used at the design stage and each module is accompanied by a skills workbook.

In biological sciences (two modules), the core syllabus of fundamental scientific aspects of biology was made more relevant to current developments in the discipline by introducing topical issues into lectures and assignments.

In all six modules the teaching of skills and of subject-specific content is closely linked and tied to the learning outcomes. Assessment is continuous over each semester and is based on a mix of laboratory and field reports, essays, oral presentations and tests/exams.

Rationale

There were three main reasons for redesigning the first year: to make the subject-specific content more accessible, attractive and topical; to place more emphasis on training in key skills required for later years; and to achieve teaching efficiencies through closer integration of the modules which form the first year for most programmes in environmental and biological sciences.

A key factor was the increasingly apparent need to address skills gaps in the first year - especially in basic numeracy, writing skills and chemistry - to improve transition into the second and later years. It was recognised that students needed to be made more aware of the importance of learning skills in the context of employability. A set of skills modules

common to most degree programmes offered not only greater teaching efficiency, but also flexibility for students to switch between degree programmes. Changes to the syllabus to increase its relevance to current issues were made in order to promote student interest and to make the modules attractive optional choices for students from other departments.

Student engagement

Students are made to feel welcome in the department and all students have direct access to academic staff through tutorials, practicals and individual consultation. Students are given a name badge in their first practical so that teaching staff can get to know who they are. Clear guidance on what is expected is provided, orally and through a student handbook. Engagement is promoted through a syllabus that is relevant to real life and future employment and allows students to contribute their own experiences, for example through questions in lectures, tutorial discussions and written assignments.

Continuous assessment over the whole semester via small pieces of coursework and short tests makes assessments less daunting, and students can benefit from early feedback prior to submitting subsequent assignments. A mini-essay submission early in the first semester is preceded by a small-group tutorial on essay writing and plagiarism. The tutor provides written feedback prior to students submitting a longer essay towards the end of the semester.

A good example where students can link their daily lives and personal experiences into their university work is the Waste Audit assignment. Every student borrows a portable balance for five days to weigh and categorise all waste before discarding it and then enters the data into WebCT. All entries are pooled to form the basis for a computing practical where, for example, the recycling rates of students on and off campus and the costs of waste disposal are calculated. Students then submit a report which includes their own observations/views on recycling and other aspects of waste management. The exercise promotes waste awareness, and final-year students still remember this assignment well.

A second example is the first-semester laboratory skills module, which is introduced from the perspective of the standard laboratory report that students' GPs would receive if their blood was submitted for routine analysis.

Student empowerment

All modules are run in WebCT, which gives students the flexibility to access a wide range of materials remotely, all in one place and when it suits them best. This includes not only handouts, lecture slides and reading lists (directly linked to the library catalogue), but also voluntary self-tests on numerical problem-solving and mock exams. Students use the WebCT discussion board to seek help from their peers and lecturers. In essay-based assignments, students are given a choice of topics.

In the two skills modules where all practical classes take place in small groups, students are given a free choice as to how to form groups. Some students choose to form permanent study groups while others move around more and explore working with a range of partners. This year we also introduced one practical where each group had to borrow equipment and undertake a project over 24 hours, which involved night-time fieldwork.

Student involvement

While students have so far not been involved in curriculum design, we have recently started a debate in our student-staff consultative committee on how students would like to see the new Enhancement Theme of research-led teaching shape the future curriculum.

Evaluation of curriculum design

It is difficult to set a baseline for evaluating the success of the new design, since at the same time our first-year intake has increased and the popularity of different degree programmes has changed markedly. The evaluation of all modules, which is now carried out every semester via the university-wide standard questionnaire, shows overall very positive responses from the students. Statistics for the new second-semester environmental science module show an increased enrolment of students from other departments, increasing from a five-year mean of 14 per cent to 20 per cent.

Engagement can to some extent be measured through usage statistics of voluntary WebCT-based self-tests. In 2007, for example, two-thirds of students out of a class of 150 used two online mock exams. An initial evaluation of exam performance after the introduction of two tests in place of one end-of-semester exam showed an improvement in pass rate, but we need to track this over a longer period.

Useful lessons for others in the higher education sector

The revisions have incorporated a focus on:

- topicality - to engage students' interest
- employability - even if students do not pursue their degree to honours level.

Facilitating factors in progressing first-year curriculum design work

The redesign of our first year was helped greatly by a collective spirit among colleagues and a desire to make the most of the opportunities that arose from the merging of two departments into the School of Biological and Environmental Sciences.

Barriers to progressing first-year curriculum design work

The largest barrier is the academic staff resource, such as the time required to give extensive feedback on coursework or run 20 tutorial groups for a class of 150 students. There has recently been some erosion in the provision of tutorials and practicals, which has had a negative impact on the coherence of the curriculum.

Dissemination of this work

We have no dissemination plans.

Case study 6

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Subject/discipline	mechanical engineering
Students	MEng (five-year course, 140 students per year).

What did you do?

The impetus for a change in curriculum originally came in 1994 when it became apparent that the drop-out rate over the first and second years combined was running at 25 per cent. This was particularly puzzling since, by and large, our student cohort was well qualified and we have not had to enter clearing for many years. A series of informal interviews with departing students, as well as those who remained, led us to the conclusion that many students could not engage with the course, did not find it stimulating and, in particular, felt it was not well integrated.

A study of the literature at the time on the problem of student retention showed that we needed to introduce a sense of belonging. It also showed that we had the opportunity to do this by a more integrated course redesign (for the whole first-year curriculum) based on very focused group work in all classes, and through an innovative approach to teaching and learning based on concepts of active collaborative learning.

For the latter we introduced: a form of problem-based learning in one-third of the first-year curriculum (design studies); teaching-by-questioning supported by electronic voting systems - the first in Europe - in large lecture classes (another third of the curriculum); rooms refitted for seating in groups of four (called InterActive ClassRooms); and the use of purpose-built teaching studios for mathematics and IT-related subjects. The students were put in groups of four and worked in those groups in every class (apart from first-year electives) for the whole year.

The change was put in place from 1997 to 1999. The outcome has been simple: high attendance at class (over 90 per cent) and high retention (over 90 per cent).

Rationale

As outlined above, the new approach was introduced to tackle the retention problem through a more exciting and interactive style of teaching and learning. Visits to US institutions which had already introduced such changes in engineering education, and discussions there with academic staff and students, demonstrated very strongly to us that this approach would work, as well as being much more engaging. The large-lecture format (there are around 140 students in the class) in particular was not working and we needed some means of engaging the students.

Student engagement

Our aim was to introduce active, collaborative learning in all classes. Instead of formal lectures and laboratory sessions for design, we introduced a variant of problem-based learning called 'mechanical dissection'. We could not wholly abandon the large-lecture format, but we were able to use EVS and group seating to promote discussion, using a questioning/discussion technique known as 'peer instruction'. The one-hour lecture was remodelled as a two-hour session with informal breaks.

Finally, the classes based on mathematics and IT (the basis for modelling and simulation in engineering education) were eventually moved into custom-designed teaching studios, which allowed mini-lectures, group work, structured tasks and end-of-task discussion (group and class-wide) to be used. All of these changes have made the students much more engaged, with lively classes and exceptional attendance (even at 09.00 on a Friday morning).

Student empowerment

Students now have an active role in each class, whether in InterActive ClassRooms, teaching studios or PBL in the laboratories. Students contribute to the class and, through their discussion and response to questions, guide the delivery of the class continuously. All these techniques implicitly reinforce students' formative self-assessment.

Student involvement

Students have not been involved in curriculum design, but we survey them and evaluate many features of the classes (in particular the pace) very frequently. This is easy if using EVSs.

Evaluation of curriculum design

Several independent evaluations of the use of EVSs, PBL and studio teaching have been undertaken over the years. The results are available in the literature and in case studies available through the Higher Education Academy's Engineering Subject Centre and the Joint Information Systems Committee (JISC) (the use of mobile systems and design of learning spaces).

As mentioned above, student attendance and engagement have improved significantly over the past decade. A less formal indicator has been the distribution of results for class tests. Before the change, the distribution of test grades typically showed a bimodal form, with the lower mode representing a cohort of disengaged students. The distribution is now always unimodal - that is a normal distribution with a very short tail and a clustering biased just past the average. Many studies of interactive engagement methods in large-class teaching, based on active collaborative learning, have shown similar results.

Useful lessons for others in the higher education sector

The active, collaborative learning and group work from this project offer lessons to others wishing to enhance first-year student engagement.

Facilitating factors in progressing first-year curriculum design work

Visits to other successful practitioners, at home and overseas, proved very useful. Support from departmental and university management was also important, along with a team-teaching approach by enthusiastic, committed academic staff.

Barriers to progressing first-year curriculum design work

Cynicism - a belief by other staff that these types of innovations are just fads - needed to be overcome, along with attitudes such as 'if it worked for me it will work for them - they're just lazy'. In addition, although the changes needed to be planned, innovative teaching, learning and assessment also requires an innovative approach in course approval (from both the institution and professional bodies in our case).

Dissemination of this work

Many links can be found on the Re-Engineering Assessment Practices website:
www.reap.ac.uk

Case study 7

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Subject/discipline	geography
Students	Level 1, around 380-400 students per year. Mainly school leavers, with a small proportion (2-3 per cent) of mature students.

What did you do?

This module, Introduction to Human Geography 1, was one of four in the first-year geography curriculum and was also available as an elective to students from other parts of the university. In March 2006, we began work with the Centre for Teaching and Learning within the university and identified some core underlying principles for our revised module design. These included that it would be thematically based, integrative and would adopt an active learning approach. We wished to combine learning formats and resources to cater for different learning styles, introduce 100 per cent continuous assessment to improve engagement, and try to simulate small-group teaching in a large-class setting.

An enquiry-based learning approach combining small-scale investigations and individual research was adopted, and students at the end of their second year became central partners in the module's preparation. Three undergraduates were employed for six weeks over the summer of 2006 to research and develop content for the Moodle VLE.

A blended learning approach was adopted for the delivery of the module, combining face-to-face interactive lectures, small-group tutorials, online discussions and group work. Underpinning all these aspects was a desire to encourage active and peer learning through short, in-class activities, individual and group lecture preparation work and enquiry-based tutorial activities.

Rationale

This new design was first mooted in March 2006 as part of a wider university concern with improving the first-year undergraduate experience. Two pilot modules were chosen within the university - one in biology and one in geography - and we were asked to think about how we might improve the teaching and learning experiences of our students.

The module coordinators of Introduction to Human Geography 1 had already been concerned about students' engagement, attendance and attitudes to learning, so this provided us with an opportunity for innovation. We had also identified a lack of alignment between the learning outcomes that we desired and the teaching style adopted, and we wished to better incorporate generic learning skills into our module. There was also a real concern that in a large class of 400, students could very quickly feel disconnected and isolated. We hoped to encourage the formation of social networks for learning by trying something different.

Student engagement

During our restructuring of the module we recognised the need to provide incentives for engagement. Small, weekly assessed tasks ensured that students had to engage with the material throughout the module. Additionally, 20 per cent of the total marks for the module were assigned to tutorial preparation, attendance and participation, which made a marked difference to attendance and the attitude towards tutorials. Bonus marks were also given occasionally to groups who brought their lecture preparation work to class. The quality of the assignments submitted and the recent results from the module suggest that students who have engaged regularly have significantly improved their opportunity to obtain much higher overall grades.

Student empowerment

Online discussion boards were created to facilitate the development of a group online glossary worth 20 per cent of the module marks. This was designed to facilitate students in directing their own learning. The normal issues around group work arose, as team-building was a difficult aspect for the students to manage at first. However, towards the end of the module they began to display more confidence in expressing their opinions and regulating their group learning. More interactive lectures provided scope for peer learning through small-group exercises in class. Additionally, the inclusion of content from assignments in the following lectures enhanced students' 'ownership' of the module and was viewed positively.

Student involvement

In summer 2006, three undergraduates who had successfully completed their second year were employed to develop module content. At that point, the overall framework of the module was in place and the coordinators provided the undergraduates with the four case study themes. They were then given free rein to source/develop content that they would view as appropriate and helpful for learning.

Weekly meetings took place to review progress, resolve difficulties and provide general guidance. The students had access to iMac computers, video cameras, digital photo cameras and the Internet, and were encouraged to demonstrate a range of research skills that they had learned during their studies, including fieldwork, interviewing and documentary analysis. They were given full control of the design of the VLE. At the end of the internship, the coordinators reviewed the portal developed and discussed with the students how the material would be used and adjusted if necessary.

The students were also given free rein to develop the case studies from scratch. We briefed them before they began in terms of the overall themes of the case studies and the kinds of material we would be expecting them to source (for example relevant newspaper articles, websites). However, the students went much further. They created video clips, took photographs and created interactive PowerPoint displays and maps; devised online quizzes for our students to assist in revision; and interviewed key stakeholders in some of the case study topics we were interested in. At key points in the development of the material, the module coordinators met with the students for feedback purposes and to give additional direction as needed.

Evaluation of curriculum design

This module has been evaluated using a range of methods. A pre-module questionnaire was administered to assess students' expectations of the module. At the mid-point and end of the module, questionnaires were undertaken on the student experience comparing their approaches to learning in this and their other geography modules as well as their levels of engagement. The engagement of students was assessed through questions focusing on whether they applied what they learned to their own experiences, whether they discussed this module with others outside of their class, and how flexible they were to learning. Focus groups were held with small groups of students and with the tutors at the mid-point and end of the module to provide more qualitative feedback. The module coordinators also kept a teaching log to chart their experiences and issues throughout the module.

Useful lessons for others in the higher education sector

First-year curriculum design must facilitate the development of social networks as a means of building student confidence. Being among friends gives students a vested interest in attendance and promotes their willingness to engage in self-directed and peer learning through group regulation of learning activities.

Facilitating factors in progressing first-year curriculum design work

Facilitating factors included: institutional support highlighting the potential importance of our project to the wider university community; funding for a module manager to monitor the work of the tutors and ensure that grades were returned to students in a timely manner; and the appointment of student interns to research and develop material for the VLE.

Barriers to progressing first-year curriculum design work

Scepticism from colleagues regarding:

- the initial work input required to deliver the first-year curriculum in this way
- perceived dumbing-down
- the time investment required to undertake assessment in this form.

Some senior colleagues also expressed an opinion that the time spent on reviewing and revising the curriculum in this way would have been better spent on research grant applications and outputs.

Dissemination of this work

The design phase has been presented at an internal university workshop. We also presented at the 2007 Inaugural International Colloquium on University Teaching and Learning: Communities of Practice in the Digital Age. An article is being submitted to the *Journal of Geography in Higher Education*.

Other observations

While we saw more regular engagement with the module, it was very much driven by incentives. Students engaged when an assignment was due, and online activity suggested that they totally disengaged when they had no set work to undertake.

Case study 8

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Subject/discipline	education, biology, philosophy and interdisciplinary
Students	Elon University enrolls approximately 4,850 undergraduates. Elon students tend to be well prepared for academic study. Most live in the eastern US, are 18-22 years old, and come from families with moderate economic resources. Elon is a private university in central North Carolina.

What did you do?

At Elon University, we have been experimenting with a variety of approaches to involve undergraduate students in course/module-level design projects. For example:

- Classroom Management - an introductory course required for all education majors. Three faculty members and seven upper-level undergraduates have completely redesigned this introductory course. The group drafted new goals for the course, selected the required and supplemental texts and outlined the topics, assignments and grading policies for the course.
- Introduction to Biology - an introductory course taken by many non-science majors to satisfy a general education requirement. The faculty member who coordinates this course has experimented with a number of approaches to gathering highly detailed evidence from students about learning in the course (including interviews with students conducted by former students, and detailed surveys rating the learning effectiveness of each class experience). After collecting this evidence, the faculty member met with a small group of first and second-year students who had completed the course to help to analyse the evidence and determine what changes should be made in the course.
- Ethical Practices - an introductory philosophy course taken by many students to satisfy a general education requirement. A philosophy faculty member conducted a focused research course with four students (three first years, one second year) who had completed the Ethical Practices course the prior term. A central purpose of this research course was to redesign the Ethical Practices course.

These three courses are related by their participation in the university's experiment with involving students in course design. They are not connected in other curricular or programmatic ways. Introduction to Biology and Ethical Practices are core parts of Elon's general education curriculum. As such, students from all areas of the university enrol in these courses (and other similar courses) to satisfy graduate requirements. The Classroom Management course is only for students who study education.

These course-level experiences have prompted us to begin discussing how to involve students more deeply in programme-level curriculum design, particularly in our core curriculum.

Rationale

Elon has a tradition of involving students in all aspects of university life and governance. We recently began exploring how to involve students systematically in course design. Faculty who have adopted this approach believe that students have expertise or experiences that will illuminate the course design process.

Some faculty are most interested in how to help students to learn difficult or complex course material. In this case, students involved in course design assist faculty in understanding how and why novices struggle to learn specific knowledge or processes. Other faculty involve students as a way to better understand the undergraduate experience in specific courses and in college today. Faculty who have adopted this approach also believe that involving students in the design process is in itself educational, potentially transforming not only the course but also the students and faculty who work together to design the course.

Student engagement

On a practical level, we tend to engage students by inviting individuals to participate in design projects and compensating them with nominal pay or research-based course credit. We do not always invite the 'best' students to participate. Instead, depending on the goals of the design process, we might seek to engage students with a variety of characteristics.

On a more abstract level, we engage students by offering them real opportunities to collaborate with faculty and peers, to research and learn, and to affect change at the university. Students are often most engaged at the abstract level. They want to make a difference, and this motivates them to work harder and to learn more than they ordinarily might for the modest compensation we offer.

Student empowerment

Time is absolutely essential in the empowerment process. We have found that it often takes time for students to develop the confidence - and the language - to express pedagogical ideas clearly. Many seem at first to doubt that we will take them seriously. In most course design projects, a moment comes when students suddenly realise that they are being heard.

We have begun to structure our course design projects to include an early and public point (to the design group) when students make an important decision, such as selecting the textbook. This moment typically changes the dynamic of the design group, empowering students to be active participants and showing faculty the value of listening to students.

Student involvement

We have taken a variety of approaches to student involvement. In all of them, we have used small groups of two to seven students working with two to three faculty members. Most often the students in these groups are in their first or second year and have recently completed the course, although occasionally we invite students who have not enrolled in the course.

Typically, students in these groups analyse prior course materials and evidence of student learning that has been gathered by faculty. However, we have sometimes involved students in collecting evidence of student learning and satisfaction through interviews, class observations and other research methods. Faculty retain final control in course design, but students typically make significant contributions. We have multiple examples of faculty making substantive changes (in textbooks, assignments, assessments) that they would not have considered without prodding by students.

In some cases (such as the Classroom Management redesign), students apply to be part of the design project, but in most cases participation is by invitation. Different professors select students in different ways. The biology professor tends to work with students who have performed very well in his course and are now considering further study in the sciences. The philosophy professor deliberately invites students who have performed at different levels in his course; he is looking primarily for students who will challenge each other (and him) to think about the course in new ways. The education professors select students with varying experiences and interests; for example, they wanted to include at least one student who intended to teach at all three levels of US primary education (elementary, middle and high school).

In most cases, students receive course credit for participating in the redesign process (typically one or two semester hours of credit, or 0.25-0.5 of the credit received by the student for enrolling in a regular course). This credit is usually not significant in a student's four years of study at the university. In other words, students are not satisfying graduation requirements, and they are also not making significant progress towards graduation in receiving the credit given for participating in design. However, students seem to appreciate the credit because they believe that it demonstrates that this is a serious academic endeavour which is valued by the university.

In some cases we pay students for participating in the redesign process (typically around \$10 per hour, which is more than the pay of most on-campus jobs for students).

Evaluation of curriculum design

As we are still piloting different approaches and because our sample sizes are so small, we use almost exclusively qualitative methods to collect and analyse evidence of student and faculty learning from the course design process. We typically examine pre and post-project interviews, individual written journals kept during the course design project, and a variety of student work products. We also compare the course syllabus and materials from before and after the design project.

Useful lessons for others in the higher education sector

Our 'course design team' process has been very useful to us. A course design team is a group of between two and seven students and two to three faculty who work together over a period of time to redesign a course. We have found value in having multiple faculty and students involved, rather than simply a single faculty member partnering with one or more students. We have also learned some important lessons about the time needed to empower students (as indicated above).

Facilitating factors in progressing first-year curriculum design work

Institutional support has been essential. The university's Center for the Advancement of Teaching and Learning has facilitated several of these design projects, allowing us to compare and apply lessons from different projects. We have also taken a flexible approach to the work, experimenting with multiple ways to meet different disciplinary and pedagogical goals. This flexibility has made the process inviting to departments and faculty across the university.

Barriers to progressing first-year curriculum design work

Involving students deeply in course design requires considerably more time than a typical course redesign. Involving students also requires significant role shifts for both faculty (who must be willing to share some power over the course) and students (who do not always take themselves or the process seriously).

Dissemination of this work

We have presented our work at a variety of conferences, including the International Society for the Scholarship of Teaching and Learning (SoTL) (2005, 2006, 2007) and the London 6th Annual SoTL International Conference (2006). We are also part of the Carnegie Foundation's CASTL Institutional Leadership Project (2006-2010), focusing on student voices in the scholarship of teaching and learning. We have begun to put some of our work on the web. See for example: <http://org.elon.edu/catl/cdwg.html>

10.3 Appendix 3: Short case studies

Short case study i

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Subject/discipline computing

Staff in the School of Computing at Napier University have designed a Professional Development module for first-year students. The module uses a blended learning approach, and the emphasis is on students developing self-appraisal, critical reflection and personal development skills. Formative assessments are used to enable students to receive feedback on their progress.

Students feed into the first-year curriculum through the staff-student liaison committee, board of studies, student satisfaction survey, module and programme review questionnaires, focus groups and personal interviews. Students have suggested ideas for new elective modules and the School of Computing has been responsive to these requests, demonstrating that students' views are influencing the curriculum.

Emphasis is placed on students becoming active and engaged in the university. By the end of week two, students have formed a social committee and by week three programme representatives have been elected; in addition, students have created a new student society and internet radio. By the end of week five, a variety of social events have been organised.

Short case study ii

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Subject/discipline media, communication and sociology

A first-year School of Media, Communication and Sociology-wide module is accessed by students from a range of academic disciplines (eg sociology, psychology, media, film, cultural studies and public relations). The module includes reading workshops, which are run as student-centred tutorials. These workshops provide the opportunity to clarify difficulties with reading sociological texts, obtain guidance on writing about sociological issues, gain familiarity with the key concepts, and try out interpretations of theories and concepts in a relaxed and supportive setting.

Students work in groups of three or four. In preparation for the reading workshop scheduled each week, one key reading from the module reading pack is selected and individual group members are asked to read and summarise this book chapter. The group members are also asked to summarise between five and 10 of the major arguments of the designated chapter in advance of the session. During the reading workshop, students are asked to discuss major arguments from the chapter and how the reading relates to major sociological theories, and to consider specific questions relating to the subject under study.

The emphasis in the reading workshops is very much on learning through active participation. Students are expected to prepare adequately for and attend every reading workshop. Reading workshops are student-focused; academic staff are only on hand to answer queries or address generic difficulties at the end of the session. The sessions are designed to offer a safe, social environment for reading, reflection and sharing ideas and tips on approaches to reading. By sharing ideas, students can identify what skills proficient readers adopt, since the workshop provides an environment for learners to talk out loud about their own approaches to reading and comprehension, as well as an opportunity to reflect on examples of good practice.

The sessions are designed to engender a sense of students' responsibility for their own learning from an early stage, rather than focusing on students as passive recipients of the tutor's knowledge. Feedback from students has been consistently positive, although difficulties have arisen in monitoring participation by all group members.

This module is designed to enhance the student experience in the rest of the curriculum through encouraging staged improvements in some key skills. Staff have reported noticing a marked improvement in students' skills in critiquing articles, writing about sociological issues and arguing points with colleagues. Their increased confidence and enhanced skills prepare them well for more challenging aspects of the second-year curriculum.

Short case study iii

Key contact	Tikus Little
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Subject/discipline	School of Law
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The autumn and spring BA Law modules are delivered by the same staff, to ensure continuity. This is important in the University of Stirling system, where students take a wide variety of modules before specialising in their third and fourth years.

Accordingly, we design the first-year curriculum as a whole so that skills learned in the first semester are developed in the second semester (for example legal problem-solving skills). We also use the same open-folder exam format in these two modules so that students can learn to take control of their own learning by collating, organising and then applying knowledge. This means that they can learn from their mistakes in the past and even if they do not take law again, they have learned an important study skill right at the start of their university career.

Public speaking is encouraged from day one through friendly weekly tutorials taken by specially chosen staff. This skill is developed in spring when confidence is a little higher; students are put into groups to research a mini-project (a case study) and prepare short presentations under the banner 'Team Tasks'. These are not assessed, but they encourage organisational and presentational skills at an early stage. They also ensure that students use the library from early on, rather than stumbling upon it in year four.

We are working on improving the first-year experience for all our students, including LLB students, whom we have for all six modules in the first year (unusual in Stirling). Skills development has been built into curriculum design, but we want to do more to embed this into the programmes. Drip-feed sessions on essay writing, group work, problem-solving and oral skills are being more formally coordinated across the first-year modules.

We are also considering subverting the early sessions in the first year from 'Here is what we want you to know' to more informal, interactive sessions on what students already know. For example, we use ice-breaker quizzes in one first-year module and these could be developed for all our first-semester modules to ease transition, diagnose levels of prior knowledge and encourage the development of community within each class.

Short case study iv

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Subject/discipline School of Education

The BEd programme has been designed using principles of social constructivism. One approach used involves providing students with guided reading and questions, to which they post responses on WebCT. Each student then takes it in turn to lead the tutorial discussion by collating the group's postings from WebCT and selecting material to guide their discussion. The tutor facilitates, becoming a participant in small-group discussions and drawing points together for the full tutorial group plenary. Following this there is a lecture as the final learning and teaching format for each focus (that is student preparation, tutorial, then lecture). This is used to reflect on the student learning experience to make explicit the theory of learning explored.

Another example from this programme is a new model of student teacher placement. Students go on placement in pairs within a school, where they have experience of a class, groups within a school and also the school community. In the field, students adopt an investigation/enquiry approach to learning about learning, teaching and curriculum, leading to presentations and written assessments.

Students on placement are required to complete structured field-based study tasks that help to focus and support their investigation. They investigate the community served by the school through environment walks, conversations with people in the community (professionals and inhabitants), visits to community facilities and online investigation. Students adopt the role of 'participant observer' and engage in 'learning conversations' with adults and children in the school and its community, gathering field notes on conversations/reflections on their learning from experiences. Reading and tutorials are used to support students' connection to learning in field investigations.

Three BEd first-year students participated in a development day with class teachers, school leaders and tutors, focusing on the new field experience model during implementation of the course. First-year BEd students have completed a full questionnaire about the course and programme. For the first cohort this was towards the end of year one (May 2006), and for the second cohort it was at the beginning of their year two (October 2007).

Student feedback in the first year is also gathered during staff-student liaison committee meetings and through weekly student feedback, using 'warms and cools' at the end of each tutorial during implementation of the course. Students are also actively involved in enhancing their learning experience during and throughout the following years of their course.

Short case study v

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Subject/discipline	geography
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The School of Geosciences is considering ways to improve student engagement, particularly in the first year. A new, session-long first-year module is being scoped and planned. The new module - working title Studying Geosciences in the Real World - is to be delivered in common across all five undergraduate disciplines in the School. It has a strong focus on student support, coursework and activities that promote continual engagement of students with their studies and their peers. The idea of novel, effective and attractive methods of assessment is seen as a way to engage staff in thinking critically about student engagement. This is, in turn, an important first step in addressing recruitment and retention across the wider college in which the School is located.

The approach taken to supporting this module has two key elements. Firstly, in the process of scoping and designing the module, three different groups of professionals have been involved since January 2007: academic staff from the School; educational developers from the university's Centre for Learning and Teaching; and the HEA's Geography, Earth and Environmental Sciences (GEES) Subject Centre. Secondly, to support and advise on the module itself and how it impacts on later stages of the four-year programme, a longitudinal survey will be carried out using a cohort of students recruited from the first intake on entry to the university.

GEES indicated a desire to work with a small number of institutions on a year-long basis, enabling deeper engagement than that possible through short visits on specific topics. The involvement of educational development from the outset in the design phase was timely, providing opportunities for pedagogic support for staff and also support for the longitudinal student survey over the succeeding three years after the end of the GEES support. Succession planning of resources thus allows the most effective and efficient use of available resource across all three partner groups.

We plan to undertake a continual survey of the entire incoming cohort over the next four years. This is intended to take two parts: a questionnaire-based survey of all students at critical points in their studies, and a series of focus groups with a selected group of student volunteers recruited on entry to the programme. The former is planned to provide an impressionistic view of the curriculum as perceived by the majority of students as they progress. The latter is strategically more important, with student input planned to impact both on their current studies and also retrospectively as they progress through the programme. Using these methods, students will have a broader view of the ongoing development of the new first-year module, and will also be able to discuss and reflect on how their first-year experience is feeding through to their studies later in the programme.

10.4 Appendix 4: Quality Enhancement Themes First-Year Experience reports

Sector-wide discussion projects:

Gordon, G (2008) *Sector-wide discussion: the nature and purposes of the first year*

Kochanowska, R and Johnston, W (2008) *Student expectations, experiences and reflections on the first year*

Practice-focused development projects:

Bovill, C, Morss, K and Bulley, C (2008) *Curriculum design for the first year*

Nicol, D (2008) *Transforming assessment and feedback: enhancing integration and empowerment in the first year*

Black, FM and MacKenzie, J (2008) *Peer support in the first year*

Miller, K, Calder, C, Martin, A, McIntyre, M, Pottinger, I, and Smyth, G (2008) *Personal Development Planning in the first year*

Knox, H and Wyper, J (2008) *Personalisation of the first year*

Alston, F, Gourlay, L, Sutherland, R and Thompson, K (2008) *Introducing scholarship skills: academic writing*

Whittaker, R (2008) *Transition to and during the first year*

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