THE UNIVERSITY *of* EDINBURGH

Enhancement-led Institutional Review

Reflective Analysis Case Studies

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Appendix 1 The Appleton Tower Cluster & teaching studios

Appendix 2 The James Clerk Maxwell Building – Learning & Teaching Cluster

1 Introduction

1.1.1 This document contains three case studies:

- Case Study A: Learning and Teaching Spaces for Enhancing Student Engagement (College of Science and Engineering, CSE)
- Case Study B: Research-Teaching Linkages: Enhancing Graduate Attributes (College of Humanities and Social Sciences, CHSS)
- Case Study C: Enhancing Postgraduate Online Distance Learning (College of Medicine and Veterinary Medicine, CMVM)

1.1.2 The case studies were selected following discussion by the ELIR Steering Group and were chosen to:

- highlight key developments in our strategic development of the student learning experience;
- demonstrate our approach to the strategic management of enhancement and the student learning experience, consistent with our devolved structure;
- provide an opportunity for each college to highlight a key priority within its enhancement strategy, thereby providing us with examples of good practice to share across the University.

1.1.3 We have selected these case studies specifically so that they can have ongoing value and benefit for the University beyond the ELIR visit. For example, the lessons learned from case study A in the development of learning and teaching spaces are already being transferred to other parts of the University. case study B provides an opportunity to document and share examples of research-teaching linkages across the three colleges. The experience illustrated in case study C in the successful development of online distance learning will serve as a template for other colleges and schools as the University rolls out its Distance Education Initiative (DEI) over the next few years.

1.1.4 The Case Studies were developed collaboratively within each of the three colleges and were led by: the former Deputy Head of College, CSE (case study A), Associate Dean, Quality Assurance, CHSS (case study B), and Dean, Postgraduate Taught and International, CMVM (case study C).

2 Case Study A: Learning and Teaching Spaces for Enhancing Student Engagement (CSE)

2.1 Introduction

2.1.1 The University opened a new Learning & Teaching Cluster (L&TC) in the James Clerk Maxwell Building (JCMB) at the King's Buildings (KB) (see Figure 2.1) in two phases in 2009 and 2010. This provided a range of formal and informal learning environments including three innovative teaching studios.

2.1.2 This is one of an ongoing sequence of projects designed to: support the Learning & Teaching Strategy of the College of Science & Engineering (CSE); learn from experience of pedagogic developments in particular schools; encourage pedagogic innovation; and work in partnership with students to meet their aspirations for modern study facilities.

2.1.3 This case study tells the story of how the L&TC and other projects were conceived, designed and implemented, and describes the specific facilities in terms of their objectives, physical form and evaluation strategies. It illustrates how the University is able to link these academic drivers to senior management decision-making on capital priorities and to best practice collaborations across the whole range of professional and technical specialisations in estates and information services.

2.1.4 This case study should be read in conjunction with section 2.4 of the Reflective Analysis (RA) which explains the parallel development of the University's structures and strategies for the improvement of learning spaces and how this work fits into the University's estates strategy, capital building programme and refurbishment cycles.

Figure 2.1: Opening of the Learning and Teaching Cluster

Formal Opening of the Learning & Teaching Cluster by the Chancellor of the University, H.R.H. The Duke of Edinburgh, on Friday 29 October 2010. (Left) The Chancellor talks with students who have experience of the teaching studio, and (Right) a group of alumni, staff, students and guests use the Studio to discuss graduate attributes and how university teaching and the design of teaching spaces can contribute to related objectives.

2.1.5 The case study addresses two key elements of ELIR in relation to 'management of the student learning experience'. Primarily it addresses the 'effectiveness of the University's approach to managing the learning environment' (RA section 2.4) and supports the 'effectiveness of the University's approach to engaging and supporting students in their learning' (RA section 2.2). It also illustrates the 'University's strategic approach to quality enhancement' (RA section 4.1) by demonstrating the effectiveness of links between University-level strategy and College Learning and Teaching Strategies.

2.1.6 The case study relates to the University's key strategic goal 'Excellence in learning and teaching' and, within this, the key strategic theme of 'enhancing our student experience', a key objective of which is 'stimulating new and more flexible ways of learning, teaching and assessing through the use of new technologies and the innovative design of teaching space'.

2.1.7 It also addresses the key strategic theme 'Enhancing our student experience', a key objective of which is 'providing good-quality and well-placed learning and social spaces that support group and individual learning and form stimulating foci for the life of the academic community'.

2.2 Aims and objectives

2.2.1 The CSE Learning & Teaching Strategy (LTS)[1] developed during 2006/07, emphasises student engagement through 'responsible learning' (helping students to manage and optimise their own learning styles in a spirit of personal enquiry) and 'collaborative learning' (encouraging cooperation in ways which both enhance academic learning and promote skills for future careers).

2.2.2 The LTS has recently undergone revision in the light of changing circumstances and drivers within and outside the University (see RA section 4.1). However, the core principles on which the original strategy was founded remain intact and in some cases strengthened.

2.2.3 A number of 'vanguard courses' to lead change were developed within the 'LTS Project'[2]. To varying degrees such courses involved diversification away from the traditional lecture/tutorial teaching mode to more interactive styles. For instance, electronic voting/personal response systems (PRS) were introduced in many lecture theatres. However, for some of the more innovative ideas involving workshops, IT-led discussions and other forms of group activity, it was recognised that some teaching spaces were needed which went further in the direction of student-centred and collaborative learning, even designing out the opportunity for 'face the front' presentation. The College wished to form good design judgements for such spaces so that, as well as meeting identified requirements, they encouraged new creativity in approaches to teaching.

2.2.4 Early leaders in the School of Physics, following a constructivist learning paradigm influenced by the MIT/TEAL initiative[3], had developed a workshop style of teaching to replace conventional tutorials with managed group activity. This initially took place at old-fashioned laboratory benches. The early experiments were successful but identified the need for an entirely new kind of learning space. Lessons learned from this experience helped to define design criteria for the new projects.

[1] CSE Learning and Teaching Strategy (LTS) Principles: http://www.scieng.ed.ac.uk/LTStrategy/resources/TLSprinciples.pdf
[2] CSE Learning and Teaching Strategy (LTS) Project: http://www.scieng.ed.ac.uk/LTStrategy/index.html
[3] MIT/TEAL Initiative: http://icampus.mit.edu/projects/TEAL.shtml

2.2.5 A further College priority to underpin the LTS was to improve greatly its informal study facilities, particularly (but not only) at KB where there was a long-identified need for efficient, co-located library services. There was also a general need to create spaces which would encourage students to remain on campus for study and social purposes and to use their time optimally. The change in physical library requirements resulting from the shift to electronic journal access gave new opportunities to design library and learning spaces with greater emphasis on students' needs.

2.2.6 The Edinburgh University Students' Association (EUSA) is strongly and constructively represented on University committees. In 2004, the EUSA Vice President (Representation) presented a paper on academic facilities and services[4] which proved to be of lasting significance, greatly influencing University and College thinking ever since on the nature of learning spaces, both formal and informal.

2.2.7 It called for, inter alia, 'internet café-style' study areas, open group study alcoves, private/bookable group activity rooms and quiet/individual study spaces, all with varying levels of IT support. Emphasis was placed on comfort and access to food and drink – in short 'grown-up study spaces'.

2.2.8 The University is attuned to national and international developments of new kinds of learning spaces and to the reports and tools produced by the Scottish Funding Council (SFC)[5] and JISC/HEFCE[6, 7] which showcase projects and articulate principles and good project methodology.

2.2.9 As explained in section 2.4 of the RA, the University, through its Learning & Teaching Spaces Advisory Group (LTSAG), has consulted and studied new facilities (innovative classrooms, resource centres, learning clusters etc. in Scotland, the UK and internationally. In particular, the University set itself the task of refining the 'learning cluster concept' to suit the College's particular requirements.

2.3 Management and organisation

2.3.1 In such a large institution, responsibility for teaching spaces is complex, with both central and devolved aspects. The main opportunities for teaching space developments arise either in the context of major capital projects or through a rolling refurbishment budget for large lecture theatres. Consequently, the development of innovative teaching spaces initially posed some challenges. The story of how the College objectives were achieved unfolded in parallel with the process of establishing University-wide strategies and structures for developing and managing teaching spaces.

2.3.2 In the estates context, the University has a long-established project management process for capital projects, which has seen further refinement in recent years. Major capital projects are managed with a senior Project Board and User Groups representing the key stakeholders.

2.3.3 With overall projects often driven by local school and/or research requirements, there are ample opportunities to call upon local creative thinking. It is recognised that 'one size does not fit all' but it is also necessary to ensure that the planning

[4] Academic Facilities and Services : A Paper from EUSA, Sarah Nicholson, EUSA Vice President (Representation), 2004: http://www.smg.estates.ed.ac.uk/docs/open/Paper_G.doc
[5] "Spaces for Learning", Scottish Funding Council, April 2005: http://www.sfc.ac.uk/web/FILES/learningfiles/Spaces_for_Learning_report.pdf
[6] "Designing Spaces for Effective Learning", JISC, 2006: http://www.jisc.ac.uk/eli_learningspaces.html
[7] JISC Infokit "Planning and Designing Technology-Rich Learning Spaces": http://www.jiscinfonet.ac.uk/infokits/learning-space-design

of embedded teaching provision takes proper account of University and college strategies and the needs of the wider user community and, indeed, benefits from experience gained elsewhere. Well handled, this range of inputs can lead to highly imaginative and constructive dialogue.

2.3.4 The model for managing teaching space projects set out in the SFC and JISC/HEFCE Reports advocates a strong multidisciplinary project management group, with senior academic leadership and commitment from academics, students, architects/design team, estates and Audio Visual (AV)/IT professionals. In the projects described in this case study, this approach was progressively grafted onto the existing estates project management processes.

2.3.5 The University has now formalised its approach to learning and teaching spaces, by setting up LTSAG and requiring that it is formally consulted in relation to all major capital projects.

2.3.6 It is important to ensure that the institution accumulates experience and expertise so that best practice and lessons learned from earlier projects routinely feed in to new projects. This 'institutional memory', initially informal, is now the province of LTSAG. Further detail on remit, composition and activities of LTSAG is given in section 2.4 of the RA.

Student involvement

2.3.7 Student involvement in projects and strategy is achieved in a number of ways. The EUSA Vice President, Academic Affairs (VPAA) is an ex officio member of LTSAG and is, therefore, routinely updated and able to comment on all relevant projects. The relationship with successive VPAAs has been strong and has ensured that there is a good understanding of students' aspirations among the principal members of the Project Boards and User Groups.

2.3.8 One past VPAA was employed as the research officer for a nine-month LTSAG research project described in section 2.4 of the RA. This project included a number of student focus groups[8] to elicit views on learning, teaching and study spaces. In the specific projects described below, the Design Team and User Group held workshops at appropriate stages of the design process with staff and student community groups and various other interactions took place as described below.

2.4 The projects

2.4.1 Opportunities to address the objectives emerged in a sequence of projects over the period 2006-10, during which our methodology and procedures evolved.

The Appleton Tower Cluster & teaching studios[9]

2.4.2 The first opportunity arose in 2006 with a major capital project for phased upgrade of the Appleton Tower (circa 1970) in the Central Area of the University (figure 2.2). The first three floors of this nine-storey building contain one of the University's main common-use teaching locations. It is the main location for first-year science and engineering lectures and many tutorials.

[8] Student Focus Groups 1 and 2, Paper presented at LTSAG 13th March 2007: http://www.ltsag.isg.ed.ac.uk/

[9] Appleton Tower Cluster & teaching studio images: http://www.flickr.com/photos/jimsheach/sets/72157623873406983/

Accommodation includes five large lecture theatres and about a dozen smaller teaching rooms (originally of fairly conventional design for seminars and tutorials) with a large concourse and mezzanine.

Figure 2.2: The Appleton Tower Cluster & teaching studios

Appleton Tower teaching studio during a Physics Workshop: (Left) overall view, (Right) a "D-table" in action

2.4.3 Routinely, Estates & Buildings and Learning and Teaching Spaces Technology Section (LTSTS) staff within Information Services (IS) consulted the main College contacts to confirm their recommendations on layouts and facilities and to check for any special requirements. On this occasion, the consultation was taken up proactively by the Deputy Head of College and by academics, including the Professor of Physics Education, as an opportunity to further the objectives outlined above. It was established that the main lecture theatres would be fitted with PRS in addition to high quality visualisation and display facilities.

2.4.4 The original intention was to do likewise in the smaller teaching rooms. However, as a result of the strong engagement between academics and estates/learning technology professionals, the view emerged that we had an opportunity to do something better than this and that, however well equipped, we should not just be recreating a row of traditional seminar rooms.

2.4.5 There were intensive discussions of how best to use the space of five erstwhile tutorial rooms on the mezzanine floor to create a truly distinctive facility, meeting the needs of the School of Physics but with the potential to unlock other innovative thinking across the University. The result was the first suite of teaching studios. Design of these rooms was achieved through an informal, but very proactive, collaboration between the architects, estates and LTSTS staff, academics and students.

2.4.6 An analysis of the key requirements, a description of the facility provided (including the specially designed 'D-tables') and a preliminary review of its effectiveness are provided in Appendix 1.

The James Clerk Maxwell Building (JCMB) – Level 1 teaching studio[10]

2.4.7 As first-year courses began to make use of the Appleton Tower teaching studio, it became clear that an equivalent facility would be needed for second-year students taught at the King's Buildings. An opportunity quickly arose to upgrade a former computer laboratory in the JCMB using some existing infrastructure. This was done in summer 2007 with small capital project funding allocated by the College, managed by a similar informal/proactive group to the Appleton Tower project.

2.4.8 Building on the experience gained from the congestion issues in the Appleton Tower, it was decided to reduce the density of tables (total 12) and create a more relaxed and spacious feel. Otherwise similar principles were used with the same D-tables and AV/IT. The new room was nearly square so the table layout was quite different, though the existing infrastructure dictated the location of the control point at one corner.

The King's Buildings (KB) – Library & Study Space Issues

2.4.9 Historically, library provision at KB was distributed: a model which had become progressively more challenging over a lengthy period, due to inefficiencies of staffing, inability to provide good services and long opening hours in multiple locations. The number of locations had been reduced from nine to three, but the long-identified goal was a single, fully serviced library, providing good study facilities (primarily for students) and serving as a resource centre for the whole spectrum of information services.

2.4.10 It was also recognised that the overall facilities for students, for both study and social purposes, were not as good at KB as in the Central Area. This was causing something of an exodus after lectures to the detriment of intellectual life at the KB Campus; a matter also raised by the EUSA 'Academic Facilities and Services' document[4].

2.4.11 Addressing these problems formed part of the brief for the KB Master-Planning exercise in 2005-07 which identified a strategy to develop the central 'College Green' as the 'living heart' of the campus with library, study and other facilities ranged around it. These ideas were subsequently embedded in the KB Framework Plan[11], finally endorsed by the Edinburgh City Council Planning Department in February 2009. The elements concerned with student study and social space were then taken up through an Option Appraisal / Feasibility Study with the remit "to make recommendations (within financial constraints) for the location of a single, fully serviced library and learning resource centre and to ensure that the overall number of study spaces on the campus was not reduced but their quality was greatly improved". The remit recognised the dramatic changes in library usage resulting from electronic journal access and reflected this in the specification of study space and shelving.

2.4.12 The Feasibility Study recommended the development of a new build KB Library (KBL), primarily as a student facility, on the site of the former Robertson Library on the north side of 'College Green', adjacent to the existing KB Centre (KBC) which would be retained for the time being. It also recommended a complementary L&TC on the south side, formed by remodelling and refurbishing part of JCMB.

[10] JCMB Level 1 teaching Studio images: http://www.flickr.com/photos/jimsheach/sets/72157625800937092/
[11] RMJM : King's Buildings Planning Framework: http://www.docs.csg.ed.ac.uk/EstatesBuildings/Development/090429UpdatedFrameworkReport.pdf

2.4.13 The L&TC Project was approved and delivered in two phases in the summers of 2009 and 2010, with a formal opening in October 2010 (see figure 2.1). The much larger KBL Project received full approval in autumn 2010 with start on site in February 2011 and opening scheduled in time for the new academic year 2012/13.

2.4.14 The KBL and L&TC are co-ordinated projects with a common Design Team, Project Board and User Group. Learning from the earlier projects, the very strong User Group was set up formally, along the lines recommended by SFC and JISC/HEFCE. The Group was chaired by the Deputy Head of College with the Dean of Learning & Teaching, Library, Information Services and Estates & Buildings staff along with the Architects and Design Team and a consultation panel of students and other academic staff. Regular meetings of these Groups established an authoritative and creative design forum.

The James Clerk Maxwell Building (JCMB) – Learning & Teaching Cluster (L&TC)[12]

2.4.15 The objectives of the L&TC project extended those of the Appleton Tower project in a variety of ways (figure 2.3). It would be an environment with a diverse mix of learning and teaching spaces, both formal and informal, their juxtaposition supporting choice to suit individual learning styles and offering efficiency, for example in AV/IT support. The Director of LTSTS noted feedback from students saying: "We've got these great formal spaces (teaching studios) that we can do group work in, but actually when we leave there and try to find somewhere else to go to continue that we've got nowhere" (Director of LTSTS).

2.4.16 In the L&TC, students would have comfortable spaces in which they could make good use of their time before and after formal teaching events. 'Spill-out discussions' could take place between students and with lecturers. There would be spaces available for 'breakout' from formal sessions, including some separate informal seating within the new teaching studio. Plenty of white-board space would be available.

Figure 2.3: The James Clerk Maxwell Building – Learning & Teaching Cluster

(Left) The large teaching studio and (Right) a Group Study Room – note the "plectrum" tables.

[12] JCMB Learning & Teaching Cluster images: http://www.flickr.com/photos/jimsheach/sets/72157622670115091/

2.4.17 As part of the design process, workshops with student and staff groups were held on 22nd May 2008 and 9th October 2008. Students' comments were very supportive of the proposed plans, including:

- the proposed refurbishment "will make a huge difference to the entire building";
- a request that there should be open access to teaching spaces when not in use for lectures/tutorials;
- appreciation of the idea to open up large new windows as the current situation is "very dark and gloomy…[it] feels like a bunker";
- catering – students wanted good quality, simple and cheap food, hot drinks and snacks;
- many students noted that at present they prefer to travel back into town to study at the Main Library – it was felt that the proposals would have a positive effect on how students perceive and use the KB Campus;
- it was thought "great that the project is trying to keep people on the campus". One student said that it "will be a powerful tool for changing the culture [at King's Buildings]". It was felt that there is currently "nowhere on KB Campus to go between lectures …. This project can only be a good thing".

2.4.18 Informal consultation with staff led to a significant redesign of the group tables to support a greater range of interactions between students and staff, with or without the use of IT. The new tables are 'plectrum-shaped' with free-standing monitors and whiteboard/flipcharts.

2.4.19 In summary, the L&TC comprises the existing three large lecture theatres (now equipped with PRS and up-to-date AV/IT), one large and two small teaching studios, two open common room areas, a quiet study room, three bookable group study rooms and three open study pods, with WiFi throughout. There are over a dozen other teaching rooms located elsewhere in JCMB so overall this facility represents a significant cluster.

2.4.20 A full description of the Cluster and all its various elements, and a preliminary review of its effectiveness are provided in Appendix 2.

The Kings Buildings Library (KBL)[13]

2.4.21 When delivered in summer 2012, the KBL Project will be the culmination of the current phase of development of student facilities at the King's Buildings, representing the achievement of long-held plans (see figure 2.4). It will be the single fully-serviced library and resource centre at KB, accommodating most of the book collection currently dispersed across three separate libraries. It will have PC access and WiFi throughout, long opening hours and improved Helpdesk services relating to library, IT and e-learning services.

[13] The King's Buildings Library: http://www.ed.ac.uk/schools-departments/science-engineering/about/kings-buildings-library/kb-library

Figure 2.4: The King's Buildings Library

Architects' impressions of (Left) the new KB Library and plaza, and (Right) the atrium area.

2.4.22 The development draws on concepts learnt from the Appleton Tower and L&TC developments described above and from the University's major Main Library Redevelopment Project (MLRP)[14] (see RA section 2.4).

2.4.23 As part of the design process, workshops with student and staff groups were held on 22nd May 2008 and 9th October 2008 (at the same times as the Workshops for the L&TC). Students' comments were again very supportive of the proposed plans, including the following:

- a mix of study spaces was warmly welcomed;
- strong support for a café at ground level to be an informal study space open to all, where food is also available. Many thought it was a good opportunity to mix café and study. One student observed that "in the libraries you can't eat, whilst in the cafés you can't study" and they were enthused by the idea of being able to drink coffee/eat whilst studying;
- some questions were raised about the purpose of a roof terrace and whether it would fulfil the architects' intentions of providing a different study environment and a place for 'a breather';
- for group study, students were concerned that simply grouping chairs would not be enough to encourage a small group atmosphere and thought that 'study pods' or half-height partitioned areas would be good. In response the plans have been modified to include seven enclosed Group Study Rooms;
- students liked the idea of informal group space which didn't have to be booked, but some thought it important to have a separate room for formal group sessions in the same building as the library;
- questions were raised by engineering students about the effectiveness of the natural ventilation strategy as they were aware of an example in another building where this had not been successful;

[14] Main Library Redevelopment Project: http://www.ed.ac.uk/schools-departments/information-services/services/library-museum-gallery/using-library/mlrp

- as in the Main Library, the four floors will provide a gradation of high quality learning environments from informal on the ground floor (where catering is available), through a range of collaborative and private study areas on the first and second floors to quiet individual study on the top floor;
- the new building is fully accessible and incorporates two accessible study rooms with provision for students with special needs;
- with a double height atrium and balcony, the new Library is designed to be a striking presence on 'College Green' and to benefit from this pleasant area (with landscaping as part of the project). The adjacent KBC will be upgraded internally with a link to the new Library so that it will continue to provide complementary facilities such as open access computer labs. There is an aspiration eventually to double the size of the Library.
- the structure is engineered to the best environmental standards with sustainable fabric, rainwater harvesting and a green roof optimised for natural ventilation and natural light. Two students from the School of Engineering undertook a project[15] on sustainability in construction, using the new KBL as one of their case studies, and held meetings with the Design Team mechanical engineers.

2.5 Feedback and evaluation

2.5.1 Informal feedback and evaluation which took place as part of the planning and development of the projects is summarised above and in Appendices 1 and 2.

2.5.2 During February/March 2011, online surveys of staff and students were undertaken to seek views on the effectiveness of the developments in Appleton Tower and JCMB and their impacts on learning and teaching. A 'first look', informal digest of responses received from 23 staff and 71 students was considered by the College Learning & Teaching Committee[16] in May 2011.

2.5.3 On the basis of this digest, the present section attempts to draw out some extremely tentative observations from the online survey. The initial impression is that there are some significant responses, meriting attention with regard to the usage and management of the facilities and to future developments.

2.5.4 It is stressed that this is work in progress and 'conclusions' should be viewed with great caution. Proper analysis is required of the full data. In addition, a paper version of the survey was administered to 87 students found on one particular day in the JCMB L&TC. This data has yet to be analysed. There is also an intention to interview willing respondents to seek greater insights. This further evaluation work will be undertaken during autumn 2011.

Observations and provisional lessons learned

2.5.5 Among the survey responses, expressions of approval for the new facilities considerably exceed criticisms (e.g. 83 per cent of staff and 81 per cent of students said the teaching studios were either effective or very effective) and the level of approval for the later projects exceeds the earlier ones. There is plenty of indication that the developments have been generally well received and are an overall success.

[15] "Sustainable Design and Management of Public Buildings" dissertation by Charlie Bell for the Master of Civil Engineering with Construction Management (see Chapter 7): http://www.eng.ed.ac.uk/IIE/ceetheses/JCBellThesis08-09.pdf
[16] Online survey on Learning and Teaching Space Developments in Appleton Tower and JCMB: Preliminary digest of responses: http://www.cltc.scieng.ed.ac.uk/docs/open/Paper_B.pdf

There are statements to suggest that certain specific objectives (e.g. increasing the time that students spend studying at KB) are being met.

2.5.6 The more critical comments are likely to be the more valuable. It will be important to investigate the extent to which criticisms are attributable to various underlying issues (discussed below) which are at the heart of the College LTS and the objectives of the various projects.

2.5.7 Should any of the design principles be reassessed? The most common issue (from staff and students) concerns the difficulty of addressing the whole class in a teaching studio, due to problems of sight-lines and seat orientation. It was intended to design out opportunity for prolonged 'face the front' presentation, but have we made it too difficult to make important short announcements and presentations? Is there a compromise and should we compromise?

2.5.8 Staff development (scholarship of teaching) is a specific element of the LTS. There are indications of a need for better guidance (good-practice exemplars etc.) to support staff in using the new facilities appropriately and well, but also a need for care to avoid stifling creativity and independent innovation. This is manifest in about a third of staff respondents saying they would have welcomed further information before running classes in the teaching studios, and in many students observing that classes could have been better adapted to the facilities and equipment.

2.5.9 By way of example, the issue of whole-class presentations, raised above, might be addressed in some cases by better advice on manner of delivery (walking about, using a microphone, operating visuals remotely) which can make the interactions more positive.

2.5.10 Key objectives of the LTS are to support students to develop skills and habits of responsible and collaborative learning. Classes which make good use of teaching studios are likely to support these objectives and make corresponding demands upon the students. Courses may seem 'harder' and the teaching offering may, therefore, be criticised by comparison with more traditional courses. This is an inevitable feature of a hybrid culture as the LTS is implemented and is likely to persist indefinitely. It is also a matter of students' individual aptitudes and learning styles which will always require careful attention.

2.5.11 There may be a need for better booking information and processes so that classes are allocated to teaching studios only for the right reasons and we avoid 'shoe-horning' of traditional classes into inappropriate facilities. There are inevitable tensions between available rooms, available staffing, and scope for alternative pedagogical approaches.

2.5.12 There were several cited cases of innovative teaching practices (especially group tasks or projects) inspired by the existence of different physical spaces: 87 per cent of staff said they had varied their pedagogical approach and 64 per cent said they were doing things which they would have dismissed as impractical in more traditional spaces. There appears to be plenty of material for sharing good practice. It is recognised that developing such courses is a big investment of time and there remains some hesitancy due to anxieties over future availability of teaching studios which are still a scarce resource.

2.5.13 Several respondents appreciated the role of studios in 'breaking' practices that they considered sub-optimal, especially in replacing 'talking head'-type tutorials with more genuine student engagement.

2.5.14 Students welcomed the comfort and quality of many of the new spaces, the decent AV/IT arrangements and the availability of food and drink. Comments suggested that we are meeting some of the requests dating back to the 2004 EUSA paper[4] referenced above.

2.5.15 Many student respondents appreciated the benefits of teaching studios for group work and the benefits or potential benefits of the IT facilities for access to WebCT among other things. Several suggested that these benefits were not being fully exploited.

2.5.16 Several students said explicitly that they were spending more time studying in the JCMB, doing more collaborative study, and making better use of time between lectures.

2.6 The bigger picture and the future

2.6.1 This case study has focused on a particular group of projects closely related to the LTS of CSE. As noted above, this work is ongoing with the KBL project currently on site and further L&TC developments at KB under discussion.

2.6.2 The University is also undertaking a much wider range of projects across the three colleges and around its many campuses. The case study has sought to illustrate how the University has developed processes for managing such projects. It has established the LTSAG to take an overview of all this activity and to accumulate and disseminate good practice. Section 2.4 of the RA refers to the Learning, Teaching and Study Spaces Project, the day-long University meeting on learning spaces and the special meeting of Senatus on the same topic.

3 Case Study B: Research-Teaching Linkages: Enhancing Graduate Attributes (CHSS)

3.1 Introduction

3.1.1 Our Reflective Analysis (RA) (section 1.1.3) emphasises: "The University aims to ensure that its students, at both postgraduate (PG) and undergraduate (UG) level, are taught in a way that is informed and enhanced by our research activity." Accordingly, this case study:

- describes a definitive series of links between teaching and research at the University of Edinburgh seen through the lens of the College of Humanities and Social Sciences (CHSS);
- discusses the rationale for developing links between research and teaching (RTLs);
- illustrates the College's strategic approach and its implementation;
- describes how the College has sought to evaluate the success of its activities.

3.1.2 This case study relates to the University's key strategic goal[17] of 'Excellence in learning and teaching', a key objective of which is to "use our strengths in research to underpin how and what we teach". This is achieved by building on our standing as one of the world's leading research-intensive institutions and ensuring our research feeds directly into the learning experience at all levels.

3.1.3 In tandem with the University's Strategic Plan, there are also clear references to RTLs in the University's Learning-Teaching Enhancement Strategy[18] and, at College level, the CHSS Learning and Teaching Strategy[19] (LTS) and CHSS Strategic Plan[20] which seeks "…to better relate students' learning experiences to the College's research activities". The updated CHSS Research Strategy 2011[21] provides a further reference point for RTLs ensuring that connectivity of approach is embedded in all of the relevant spheres of activity.

3.1.4 The emphasis on RTLs in the documents outlined is itself a reflection of the Quality Assurance Agency (QAA) Scotland's own emphasis on RTLs as one of its enhancement themes.

3.1.5 Since RTLs figure prominently in strategic statements at sector, University and college levels, they provide fertile ground for demonstrating the interplay amongst different levels of strategy. At the same time, though, because RTLs are highly consonant with the University's standing as a world-leading centre of academic excellence, they have for many years been well-embedded in learning and teaching practices in at least some areas of the College. Therefore, this case study aims to show how we are building on existing strengths, (e.g. by extending their scope and by making them more transparent) rather than introducing something completely new.

[17] The University Strategic Plan 2008-12: http://www.docs.sasg.ed.ac.uk/gasp/strategicplanning/StrategicPlan.pdf
[18] University Learning-Teaching Enhancement Strategy: http://www.docs.sasg.ed.ac.uk/AcademicServices/Policies/Learning_Teaching_and_Enhancement_Strategy.pdf
[19] CHSS Learning and Teaching Strategy: http://www.hss.ed.ac.uk/AcademicAdmin/LearnTeachStrategy/index.htm.
[20] CHSS Strategic Plan 2010-2013: Paper copy available
[21] CHSS Research Strategy: Paper copy available

3.1.6 The enhancement of RTLs plays a pivotal role in relation to several other key strategic imperatives, most notably:

- the fostering of independent learning;
- the development of graduate attributes;
- the employability agenda.

Therefore, a case study on RTLs is ideally suited to demonstrating how synergies amongst these areas of endeavour are capitalised on. In this regard, the case study addresses two key elements of ELIR in relation to the 'management of the student learning experience'. In particular, the 'effectiveness of the University's approach to engaging and supporting students in their learning' (RA section 2.2) and 'the effectiveness of the University's approach to promoting graduate attributes, including employability, in all of its students' (RA section 2.3).

3.1.7 It also illustrates the University's strategic approach to quality enhancement (RA section 4.1). In particular, it uses evidence regarding RTLs to exemplify:

- the nature of the interplay amongst strategic goals at different levels, i.e. how the CHSS LTS relates to the University's Learning and Teaching Enhancement Strategy and Strategic Plan, as well as to the QAA Enhancement Themes;
- how synergies between different strategic imperatives are capitalised on;
- how enhancement strategies are operationalised across a diverse range of disciplines;
- how enhancement strategies are adapted according to the stage in the student's UG or PG academic journey.

3.2 Defining RTLs

3.2.1 RTLs have been the subject of a substantial amount of academic research in their own right. Healey and Jenkins (2009)[22] summarise their findings as a diagrammatic quadrant, each sector representing different forms of RTLs in teaching. These are: Research Tutored; Research Based; Research Led; and Research Oriented teaching. The quadrant describes varying degrees of student participation and emphasis on process rather than content. Healey and Jenkins' work provides a useful summary of existing practice rather than a programmatic instrument. However, its conclusions have assisted the College in seeking to define what RTLs mean at Edinburgh, even though the conceptual reference points are framed differently.

RTLs in CHSS at Edinburgh

3.2.2 RTLs in CHSS are routinely represented by the following kinds of activities:

- teaching informed by staff research;
- inquiry-based approaches to learning;
- inquiry-based approaches to assessment;
- research methods courses;
- students assisting staff with their research;

[22] Developing Undergraduate Research and Enquiry, Mick Healey and Alan Jenkins, June 2009, Higher Education Academy: http://www.heacademy.ac.uk/assets/York/documents/resources/publications/DevelopingUndergraduate_Final.pdf

- students carrying out their own research;
- students' own research leading to publication;
- students and staff producing joint research publications.

3.2.3 Some of these activities, for example research methods courses or student research leading to publication, are particularly well represented at PG level. However, this case study stresses the presence of RTLs at all levels of teaching at Edinburgh. As demonstrated in Box 3.1, original research is strongly encouraged in certain aspects of UG teaching and explicitly valued in assessment. Research methods are taught consistently across the student body and UGs as well as PGs routinely contribute to staff research in different ways.

Box 3.1: The publication of 4th year psychology student dissertations

External examiners and TPR panels have commended the very high standard of Year 4 student projects, many of which have been presented at conferences and even published in peer-reviewed journals. Some example publications (supervised by Austin, Deary, Lenton, and McGonigle) include:

- Brown, L. J. F., McGrory, S., McLaren, L., Starr, J. M., Deary, I. J. & MacLullich, A. M. J. (2009). Visual perceptual deficits in delirium. Journal of Neurology, Neurosurgery and Psychiatry, 80, 594-599.
- Austin, E. J., Dore, T. C., & O'Donovan, K. A. (2008). Associations of personality and emotional intelligence with display rule perceptions and emotional labour. Personality and Individual Differences, 44, 677-686.
- Lenton, A. P., & Stewart, A. (2008). Changing her ways: Number of options and mate standard strength impact mate choice strategy and satisfaction. Judgment and Decision Making, 3, 501-511.
- McGonigle-Chalmers, M., Bodner, K., Fox-Pitt, A., and Nicholson, L. (2008). Size sequencing as a window on executive control in children with autism and Asperger's syndrome. Journal of Autism and Developmental Disorders, 38, 1382-1390.

3.2.4 It should be stressed that RTLs at Edinburgh are manifest in a variety of forms and consequently will have, and be represented as having, a variety of labels. The term RTLs is a convenience in this case study. In practice, staff and students refer to RTLs in a variety of different ways.

3.2.5 Teaching is commonly understood to be 'research-led' or 'research-focused'; 'research' is a routine assessment criterion in student work at all levels; 'research methods' classes are ubiquitous; 'research seminars' likewise. Students may even sometimes be engaged in RTLs activity without the word research being employed. Regardless of the label used, or the precise manifestation, as this case study indicates, RTLs inform practically all teaching at Edinburgh. They are an embedded feature of the culture of the University and one of its defining features (see Box 3.2).

Box 3.2: Research embedded in teaching

" … I think good teaching is about showing students how we find out things rather than simply telling them what they are. Talking about our own research in class, sharing a project idea with honours students as a dissertation topic and having students take part in our experiments are all great ways to accomplish that while also learning from their reaction, input and collaboration. I see it as a win-win situation …"

Senior Lecturer, Linguistics and English Language

3.2.6 CHSS includes a large and very diverse range of disciplines which vary in the nature of their research and teaching, as well as in the extent to which they are vocationally oriented. While the enhancement of RTLs is an important goal for all disciplines, the way in which this goal is operationalised needs to be tailored to the nature of the discipline. This presents both challenges and opportunities for the strategic management of enhancement. Our response has been to combine top-down with bottom-up and horizontal approaches to enhancement.

3.3 Aims

3.3.1 The overall aim of enhancing RTLs in CHSS can be subdivided into the following more specific aims.

3.3.2 **To raise awareness of RTLs amongst staff and students:** This includes both making existing RTLs more explicit and further enhancing awareness of the wide variety of forms that RTLs can take. The motivation for this aim came partly from student survey data collected by our institutional contact for the QAA Research-Teaching Linkages Theme. This data indicated that more could be done to make RTLs explicit and that this would enrich learners' experiences.

3.3.3 **To encourage more extensive and more varied uses of RTLs:** All schools make use of RTLs, though there is variation in the extent and nature of these links. One reason for aiming to increase awareness of the wide variety of forms of RTLs is to encourage all schools and subject areas to expand their repertoire of RTLs, while recognizing the importance of disciplinary differences in the types of RTLs that are most appropriate (see Box 3.3).

Box 3.3: Edinburgh Law School Summer Research Assistant Scheme

The Summer Research Assistant Scheme allows research assistants to be employed on a short-term basis during the summer for 20-40 hours to work with members of academic staff in the Law School. The scheme is open to all honours students and graduate LLB students. Research outcomes that are linked to specific publications, conference papers or external funding applications receive preference.

3.3.4 **To increase RTLs in years 1 and 2 of UG degree programmes:** Another reason for aiming to increase awareness of the wide variety of forms of RTLs is to extend the already widespread use of RTLs at PG and honours level study into the pre-honours years of UG study at a deeper level than might previously have been the case. An increased use of RTLs in Years 1 and 2 is likely both to enrich the pre-honours learning experience and to facilitate the transition to honours. This aim integrates two of the QAA enhancement themes: Research-Teaching Linkages and the First Year Experience (see Box 3.4).

Box 3.4: 1st year economics students

Students are given a country to investigate in groups and they are asked to pull together various economic performance indicators for their country and to present their findings in a poster session to staff. Students are encouraged to gather and manipulate the data and produce their own insights into the country. Staff and PhD students question the students at the poster session and this is important in introducing first year students to the key skills of doing research. It also enables them to meet staff and research active postgraduates, making them feel a valued part of the research community.

This practice has been adapted and rolled out by the Business School to Business Studies 1 students who conduct a strategic environment and competitive analysis of a company of their choice and present it in a poster session to staff and tutors.

3.3.5 **To promote integration between RTLs and the development of independent learning skills, graduate attributes and employability:** Added value can be gained from the Research-Teaching Linkages enhancement theme by exploiting its interconnections with the enhancement themes of Employability and Graduates for the 21st Century. One of the main strands linking all three of these themes is students' development as increasingly independent learners and critical thinkers as they progress through their academic journey. An example is the case of the Psychology Volunteer Research Assistant Scheme[23] and the production of Psychobabble, The Journal, in the School of Philosophy, Psychology and Language Sciences (PPLS) (see Box 3.5).

Box 3.5: Psychobabble, the Journal[24, 25]

Psychobabble, the Journal, a psychology journal set up and run by students, provides a forum for UG & PG students to showcase their own experiments, review books they have read or discuss contested issues within psychology. It aims to encourage enthusiasm, discussion and debate within the student community.

3.3.6 **To support the sharing of good practice with respect to RTLs:** As well as being a valuable aim in its own right, sharing good practice across the College and across the wider academic community provides a powerful mechanism for addressing the other aims outlined above. Teaching can also have a positive impact on research, leading to generation of new research ideas, data and insights in emerging areas (see Box 3.6).

Box 3.6: The impact of teaching on research

"… I and many of my colleagues find that the process of teaching is an important source of inspiration for both conducting new research and preparing research dissemination strategies. For example, I used part of my sabbatical leave to develop a new inter-disciplinary Honours option in cross-cultural happiness studies. The novelty of the theme (this was the world's first anthropology course on happiness) triggered several research networks both within the University and across several continents, leading to new research collaboration and publication of four books on cross-cultural happiness studies ..."

Senior Lecturer, Social Anthropology, School of Social and Political Science

[23] Psychology Volunteer Research Assistant Scheme: http://forums.psy.ed.ac.uk/VRA.php
[24] Psychobabble, The Journal, November 2010, Issue 1: http://www.psy.ed.ac.uk/psy_research/documents/Psychobabble_issue1.pdf
[25] Psychobabble, The Journal, March 2011, Issue 2: http://www.psy.ed.ac.uk/psy_research/documents/Psychobabble_issue2.pdf

3.4 Management and organisation

3.4.1 A central tenet of our approach to managing RTLs is that decisions about detailed strategy and implementation are best made at school or subject area level and that high quality innovation often comes from the bottom up. There are several reasons for this approach:

- first, it is in keeping with the devolved structure of the institution;
- second, given the diversity of disciplines and the wide variety of types of research in CHSS, we believe that the quality of RTLs will be enhanced if the linkages are designed and crafted by those with expert knowledge locally;
- third, we consider that ownership of and investment in RTLs is easier to achieve when those who are directly involved in researching and teaching a particular discipline are also directly involved in identifying, developing and delivering appropriate RTLs.

3.4.2 At the same time, we aim to combine these bottom-up influences with top-down and horizontal influences. In this way local activities are informed and guided by higher level strategies and knowledge and expertise can be exchanged, both with academic colleagues in other disciplines and with academic policy makers. In this section, we reflect on the structures, strategies and processes that we use to facilitate communication about RTLs between and within levels of the academic hierarchy.

RTLs as a component of the CHSS LTS

3.4.3 RTLs have always been central to the CHSS LTS. As can be seen from the current version of this strategy[19], it provides a framework for setting RTLs firmly in the context of the 21st century graduate, the employability agenda and the development of independent learning skills.

3.4.4 The first version of the CHSS LTS was launched in 2007 and has been reviewed annually to monitor progress and make refinements. A second version was introduced in 2010 following a major three-yearly review (see RA section 4.1).

RTLs as integral to the University's Graduate Attributes Framework and Employability Agenda

3.4.5 The University's Graduate Attributes Framework facilitates the integration of RTLs with graduate attributes and employability by embedding RTLs in its descriptions of graduate attributes[26]. For example, one of the three overarching graduate attribute statements is Enquiry and Lifelong Learning, which refers to graduates' core knowledge base being enhanced by "exposure to cutting-edge research and the processes of discovery and knowledge generation" which will "stimulate a lifelong thirst for knowledge and learning and encourage a pioneering, innovative and independent attitude" (see Box 3.7).

[26] Graduate Attributes Framework: http://www.employability.ed.ac.uk/GraduateAttributesFramework.htm

Box 3.7: Fostering Independent learning

"There was much more emphasis on research in our learning in the 3rd and 4th years. I was very aware that the lecturer used their own research in the Music and Communications course. Amongst other things, we had to critically assess a recent research article and understand what was going on in modern research. Because of that course I became more interested in human communication and chose a related subject for my dissertation. I found the research methods course very interesting. I chose to do interviews and assess performances at The Jazz Bar, it made things come alive. I had always planned to go into researching but doing my dissertation has made me much more interested in following research as a career as I can get my own ideas into it."

4th year music dissertation student

3.4.6 Similarly, RTLs are embedded in the four overlapping clusters of skills and abilities that underpin the overarching attributes: research and inquiry; personal and intellectual autonomy; communication; and personal effectiveness. For example, graduates' skills and abilities will enable them to "create new knowledge and opportunities for learning through the process of research and enquiry."

3.4.7 Employability is one of three contexts in which graduates can apply their skills, including those developed through RTLs, the others being academia and society/ community. As the Graduate Attributes Framework explicitly acknowledges, research and enquiry skills, like the other skills and overarching attributes, are on a spectrum, with students developing these skills to varying levels depending on the length and nature of their academic journeys.

3.4.8 For PG research students, the development of specialised research skills and the application of these skills to create new knowledge are typically the most salient aspect of their studies. However, the development of research and enquiry skills also is regarded as important for students at all levels and as relevant to many different graduate pathways. Conversely, the specialised research expertise acquired by PG students is increasingly being integrated with a broader range of graduate attributes, for example through the transkills courses organised by the Institute for Academic Development[27].

Sharing good practice about RTLs within CHSS

3.4.9 'Buy in' to the LTS (and hence to RTLs) from all those responsible for delivering it has been considered imperative from the start. Key figures charged with disseminating the strategy and ensuring it is understood and capable of implementation include: the Head of College, the Deans, the Heads of Schools and the School Directors of Teaching or equivalent.

3.4.10 Since the initial launch of the strategy a number of College-sponsored events have taken place which sought to focus attention upon RTLs. These have included lunchtime discussions around sub-themes of the strategy, including RTLs, and full and half day sessions focused on RTLs and graduate attributes, which have involved outside speakers as well as colleagues who offered opportunities to share their practice and to discuss any issues raised.

3.4.11 The College has developed a web page[28] for sharing resources about RTLs and for highlighting the links between RTLs and graduate attributes. A link to this page

[27] Transkills: http://www.transkills.ed.ac.uk/
[28] CHSS Research-Teaching Linkages Case Studies: http://www.hss.ed.ac.uk/AcademicAdmin/LearnTeachStrategy/researchteachinglinkages.htm

is embedded in the College LTS document. This webpage is a living document and is designed to encourage two-way communication in that as well as enabling readers to find out about RTLs in other schools, it also invites them to submit examples from their own schools. In the context of this case study, the webpage provides evidence of the richness and diversity of RTLs across the College.

3.4.12 The documentation produced by schools, and by the College for the annual round of QAE reporting and for TPRs/PPRs, serves as a further channel for sharing good practice about RTLs within (and beyond) the College, in addition to its role as a feedback and evaluation mechanism.

Student involvement in enhancement of RTLs

3.4.13 Students are represented on the relevant College and school committees where they are encouraged to contribute to discussions about RTLs as well as about the overall LTS. The Inspiring Teaching Conference[29], organised annually by EUSA and based on the Teaching Awards, provides a valuable opportunity to showcase innovative activities including RTLs and to stimulate discussions between students and staff about these. Box 3.8 illustrates the key role that RTLs played in the winner of the Best Course Award in 2010.

Box 3.8: Financial Services Marketing, Business Studies

Each year the course includes a live consultancy project for a financial institution that students conduct in small groups. In 2009/10 the task was to develop an online banking proposition for Deutsche Bank's SME customers.

One of the students commented: "I particularly liked the group project in this course which is a real-life project with Deutsche Bank. This gives the opportunity to students to practise what they have learned from university including soft skills (e.g. teamwork and organisation) and knowledge about business and marketing. And also I enjoy the great experience listening to guest speakers from … banks who were invited to deliver special topics in Financial Services Marketing. I also notice how the lecturer makes an effort to engage students in lectures. From her effort, I can see how she has been working hard in organising the course to deliver good teaching for students" (Honours Student, Business Studies).

In 2010/11, the project focused on increasing HSBC's brand awareness in Scotland. The winning team featured in the local press[30].

Engagement with QAA Enhancement Themes

3.4.14 The College's work on RTLs has both contributed to and been enriched by QAA activities regarding the Research-Teaching Linkages theme and related enhancement themes.

3.4.15 The QAA Research-Teaching Linkages theme Steering Group was formed in June 2006 to take forward development work across the sector from 2006 to 2008. The University's Institutional Contact was the CHSS Associate Dean (Quality Assurance and Enhancement). The data he collected from staff and students regarding the University's engagement with RTLs for his final report to QAA[31] has provided a strong foundation for the College's subsequent work on RTLs.

[29] Inspiring Teaching Conference: http://www.eusa.ed.ac.uk/campaigns/inspiringteaching/
[30] Edinburgh students tackle real-life challenges with HSBC: http://local.stv.tv/edinburgh/news/14780-edinburgh-students-tackle-real-life-challenges-with-hsbc/
[31] Enhancing Graduate Attributes report for QAA, Jan 2008: Paper copy available.

3.4.16 In addition, the College has advertised to colleagues a range of developmental opportunities which relate to the theme. These include: QAA Enhancement Theme Conferences and associated resources, such as the various institutional and subject-based publications emanating from the theme; Higher Education Academy (HEA) events and resources; the International Higher Education Colloquium on RTLs organised by Professor Carolin Kreber (a member of CHSS) in June 2007. Members of CHSS have provided feedback to all the school UG, PG, and QA Directors within the College committees on RTLs following conference attendances at York, Glasgow, Southampton, Stirling, Abertay and Heriot-Watt in 2007 and 2008, as well as advertising the range of events provided by QAA, HEA and other HE institutions as and when they have been due to occur.

3.5 Feedback and evaluation

3.5.1 To date, monitoring and review of enhancement activities in relation to RTLs has mainly been embedded within existing QAE processes. Evidence regarding the effectiveness of our approach is available from the following documentary sources:

3.5.2 Annual QAE reports: All schools are required to report on their progress annually to the Directors of Quality Assurance Group (formerly the College Quality Assurance & Enhancement Committee) which in turn reports to Quality Assurance Committee (QAC). The guidance for these annual reports prompts schools to assess their progress in relation to key priorities within the College LTS which include RTLs.

3.5.3 In addition, schools are required to engage in a Forward Look and show what action planning they have undertaken in order to progress the work in the next period under review[32]. The CHSS LTS 2010 includes more explicit timelines. In addition to requiring annual reporting of progress in relation to each strategic priority, it also asks schools to set priorities and targets for the next 3 to 5 years and to incorporate these in their school plans. It will be interesting to see how this requirement to incorporate longer timelines in the review process affects the development of RTLs.

3.5.4 Internal reviews: The process of Internal Review (TPRs for undergraduate and PPRs for postgraduate) provides opportunities, through the structured approach to review degree programmes which the review panels and review areas are working with, to look at staff and student experiences of teaching and learning and to pose questions about those experiences. Such reference points often include consideration of the skills set, of graduate attributes or of the form and extent to which research has featured within the educational context[33].

3.5.5 External Examiners' reports: External Examiners often provide useful comments in their reports which make specific reference to the quality of the student learning experience, to the range of attributes which are exhibited by students and to the rich variety of ways in which Edinburgh academics and students work with the variety of forms of RTLs. Whilst there are no specific questions on the report form which ask Externals to comment in this area, a review of reports for the academic years 2008/09 and 2009/10 suggests that External Examiners see RTLs as a positive aspect of the provision across the College[34] (see Box 3.9).

[32] CHSS Quality Assurance and Enhancement: http://www.hss.ed.ac.uk/AcademicAdmin/QualAssurance/
[33] Quality enhancement – good practice: http://www.ed.ac.uk/schools-departments/academic-services/quality-unit/quality-enhancement/good-practice
[34] CHSS External Examiners' comments: Paper copy available

Box 3.9: External Examiners' comments

" … I will treasure the memory of the student who explored the discrepant sources on the death of the emperor Domitian by casting it in the style of a script for an episode of Columbo: this was inspired and made me hoot with laughter but it was also informed by detailed knowledge of the relevant sources …" **Ancient History.**

" … The lecturer is to be congratulated for developing ways in which research methods teaching and training may be built into this 3rd year module as an option for those students wishing to take a more social scientific, empirical research-based pathway…the students' high standard of work suggests that this teaching and learning innovation should be made available to more students …" **Criminology.**

" … The dissertations demonstrated a breadth of knowledge, a synthesis of skills of different types and an intellectual curiosity which seems to me to be the hallmark of well trained independent academics. The writing and presentation skills demonstrated were also very high and these are skills which will equip students well for the world beyond university …" **English Language and Linguistics**.

" … the best assignments provided evidence of wide reading, a comfortable command of research skills, an ability to synthesise and critically analyse theory, collect data and evaluate their evidence base, with implications for their own and others' practice …" **PGDE Programme.**

" … this research-led teaching has meant that the module always engages with many of the latest approaches to Film Studies and is genuinely cutting edge. The sense of energy this brings with it is very evident in students' work …" **Film Studies.**

3.5.6 In addition, evidence of the richness and diversity of RTLs in CHSS, as well as of a willingness to share good practice and to raise awareness of RTLs, is provided by:

- The case studies submitted by schools to the College's RTLs webpage;[26]
- Strategic discussions of RTLs and graduate attributes in the College's QAE, UG and PG committees;
- Opportunities for students to give feedback on RTLs are provided through EUSA representation on College committees. At school or subject area level there are opportunities for students to comment on RTLs through discussions in Staff-Student Liaison Committees and via course (or programme) evaluation questionnaires. Box 3.10 illustrates student comments in relation to RTLs.

Box 3.10: Student comments

" ...students can see what their lecturers are doing outside of the classroom and so provides a great insight into academic life from the lecturer's perspective …" **1st year Social Anthropology Student**

"… the lecturers are a lot more informative and entertaining than staff who are not involved in research and the more enjoyment the lecturer shows, the more the students learn and enjoy the class …" **2nd year History of Art Student**

" … you are being taught to the highest standard at the cutting edge and the lecturers have a habit of being incredibly enthusiastic …" **3rd year Law Student**

" … the best thing about the course for me was the lecturer's passion for her subject, it definitely shows through her teaching …" **4th year Psychology Student**

" … the lecturers here are more likely to have the most recent information on the subject and their enthusiasm makes the subject matter interesting and, as a result, creates similar enthusiasm in myself …" **3rd year Archaeology Student**

3.6 Forward look

3.6.1 As has been noted already, steps have been taken through the QA reporting process, under the auspices of the newly implemented College Learning and Teaching Strategy, to ensure that schools:

- develop action plans in respect of key selected areas of the Strategy (e.g. RTLs);
- incorporate timelines covering a 3- to 5-year developmental cycle;
- report on progress on an annual basis.

3.6.2 Discussions are taking place at College level regarding the possibility of further research on the staff and student experiences of RTLs subsequent to the work undertaken in 2008.

3.6.3 The primary intention in this strategic initiative is twofold: to further enhance the Edinburgh experience and to raise student awareness of the connections of research and teaching. This, in turn, is expected to foreground a range of aspects of research, of skills development and of the accumulated graduate attributes which are likely to be relevant to the ongoing development and implementation of the HEAR.

3.6.4 In many respects, this area of focus will also offer the potential for more autonomous learning approaches, be they individually or group-based. At the same time it will also facilitate the development of differing forms of assessment and/or more integrative assessment formats than have been available to date.

3.6.5 Aspects of RTLs enhancement work across CHSS that warrant ongoing consideration include the following:

- the need to make explicit the existing research skills which students are acquiring throughout their period of study;
- a heightened awareness on the part of learners that they are often being introduced to research work which might well be 'pushing the frontiers of knowledge' within their subject areas;
- introducing students to, and enhancing proficiency in, various aspects of research methodology appropriate to the discipline or vocational area of practice;
- seeking to ensure that course descriptors highlight references to how the subject connects to research directly and what the developing skill set which emerges from that engagement offers to the learners;
- in respect to RTLs, it is imperative that we are able to explain clearly to learners what we are seeking to do in this regard and are able to outline clearly the benefits to be derived from an embedded culture of research-informed teaching including graduate attributes, career opportunities and so on;
- drawing from examples of good practice in this area, enabling (as has been the case with other areas of work) a sharing and range of developmental opportunities across schools and fields of practice.

3.6.6 Whilst this case study has sought to highlight the range and variety of RTLs in evidence across CHSS it is important to emphasise that the application of these principles and practices are in evidence in both of the other two colleges. It can reasonably be claimed, therefore, that RTLs permeate the student experience across the University, connecting the graduate attributes and employability enhancement arenas.

3.6.7 It is important to note also that whilst there is still work to be done in enhancement terms there is a clear need to both highlight and celebrate the connections between research and teaching so apparent across the University's provision. Some aspects of this work relating invariably to RTLs has been recognised and celebrated at the annual EUSA Teaching Awards ceremony.

3.6.8 In addition, introduction of the Innovative Learning Week across the University, for example, provides schools and subject areas with the opportunity to focus their attention and the student experience on a wide range of aspects of teaching and learning. There are already a number of proposals for activities during this week which will draw and expand upon RTLs. It is anticipated that there will be many further examples on offer which have not yet been presented to College from schools. This will then serve to enhance the wider aspects of curriculum experiences for students, including those which seek to celebrate wider opportunities for multidisciplinary experiences.

3.6.9 Finally, it is important to note the emphasis placed upon research-teaching synergies in the recently validated Postgraduate Certificate in Academic Practice (to replace the existing Postgraduate Certificate in University Teaching from December 2011). This seeks to ensure that, as an integral component of academic staff development, RTLs are very firmly located in future curriculum development and teaching and learning practice across the University.

4 Case Study C: Enhancing Postgraduate Online Distance Learning (CMVM)

4.1 Introduction

4.1.1 The University has had a long-established commitment to the development of e-Learning. The University's e-Learning Policy Statement, within the e-Learning Strategy[35], emphasises that we actively support the use of information and communications technology (ICT) in learning and teaching at all levels: undergraduate (UG), postgraduate (PG) and continuing professional development (CPD). We consider that appropriate use of such technologies can enhance the quality of the student learning experience, promote greater and wider access to our courses and programmes and improve the effectiveness of teaching. It is particularly relevant to supporting learning in a research-rich environment at this time, when use of ICT in research is also increasing rapidly.

4.1.2 Across the University we have many good examples of the development of e-Learning resources to supplement and support on-campus programmes, as typified by the Virtual Farm presented as a case study in the previous ELIR. Since then, our use of e-Learning has evolved in a number of targeted areas to include the support and delivery of off-campus and distance learning programmes.

4.1.3 This case study discusses the development of e-Learning for the delivery of online distance learning (OLDL) off-campus programmes within the College of Medicine and Veterinary Medicine (CMVM). It outlines why this route was particularly suited to the development of PG education in CMVM, the developments to existing on-campus practice, assessment regulations and quality assurance (QA) procedures that needed to be made, and the lessons learned from CMVM's extensive involvement in OLDL. These lessons can help to inform similar developments in the other two colleges following the announcement of the University's Distance Education Initiative (DEI) in 2011.

4.1.4 This case study relates to the University's key strategic goal[36] 'Excellence in learning and teaching', a key objective of which is to "lead the development of e-learning to pioneer innovation in teaching and assessment methods" to be achieved by "expanding access to taught postgraduate and continuing professional development provision through e-learning". In line with this, the University has set a target to increase our headcount of taught PG students by 50 per cent between 2008 and 2012. The development of e-Learning and at distance programmes will significantly contribute towards the achievement of this target.

4.1.5 This case study addresses two key elements of ELIR in relation to 'management of the student learning experience'. Primarily it addresses the 'effectiveness of the University's approach to managing the learning environment' (RA section 2.4) and supports the 'effectiveness of the University's approach to engaging and supporting students in their learning' (RA section 2.2). It also illustrates the effectiveness of institution-led monitoring and review activity (RA section 3) in relation to off-campus provision.

[35] E-Learning Strategy Implementation Plan: http://www.ltc.isg.ed.ac.uk/docs/open/eLC_Paper_B_22-09-2010.pdf
[36] Strategic Plan 2008-2012: http://www.docs.sasg.ed.ac.uk/gasp/strategicplanning/StrategicPlan.pdf

4.2 Background

4.2.1 E-Learning can be defined as the promotion of learning and the support of learners using digital/electronic methods/techniques. CMVM started developing its first e-Learning programme in 2003, resourced through the Principal's e-Learning Fund (Box 4.1), which encouraged then departments and faculties to consider development of OLDL programmes. At about the same time, planning was at an advanced stage for restructuring the University into three colleges. This restructuring and the accompanying devolution of decision-making authority enabled CMVM to reappraise its PG provision and consider what form of degrees suited it best.

Box 4.1: Principal's e-Learning Fund, 2003

What is the purpose of the e-learning fund?

The e-Learning steering group agreed that the overarching aims of the funding were:

- achieving widespread, appropriate use of e-learning in all schools and at all degree levels as a normal part of learning and teaching;
- University of Edinburgh has an international reputation ('centre of excellence') for institution-wide implementation of high-quality e-learning;
- University of Edinburgh has an international reputation for leading-edge developments in learning and teaching through the use of e-learning ('centre of innovation').

The funding programme should therefore help the colleges to create local expertise in e-Learning, working with college or school e-learning units or groups where these exist. Proposers should undertake to include staff with an interest but little or no experience of e-learning in the project teams. This will have the effect of widening participation, expanding the skillbase etc.

It is anticipated that the bulk of funding will be allocated to projects which will generate e-resources to support core undergraduate, on-campus business of the University. Funding will not be given for projects that aim only to provide course information online.

However, we are also looking for projects which will lead to the development of e-distance courses (CPD or postgraduate) with potential for income generation. This does not preclude e-learning developments which, for example, stimulate recruitment or lead to a reduction in face-to-face contact, which may also be seen as income generation.

Proposals should be for funds for specific developments with agreed outcomes in a defined timescale. Schools/colleges will be expected to contribute resources (e.g. academic staff time) to each of the funded projects and these should be identified. Potential applicants should note that purely research projects are unlikely to be successful as the potential for these to deliver e-learning materials to students in a short timescale is low.

4.2.2 Each of the three colleges of the University is unique. In the case of CMVM, there are a number of aspects that differ from the other two colleges and which contributed to the decision to develop OLDL programmes:

- within CMVM, there is very little direct relationship between its UG and PG provision. The two major UG programmes, Medicine and Veterinary Medicine, are each tightly regulated by professional, statutory and regulatory bodies (PSRBs) and share no teaching with the portfolio of masters and PhD programmes;
- the PG programmes of the College attract students from a wide range of science backgrounds in addition to clinical graduates;
- many of the academic staff of the College have heavy clinical commitments that would have made expansion of PG reasearch (PGR) student numbers

challenging, if quality were to be maintained. At the same time, the expertise and experience of the same staff were well-suited to PG taught (PGT) programme development. The asynchronous nature of many of the College's programmes fits well with heavy clinical loads for the staff and the busy lifestyles of part-time students;

- both medicine and veterinary medicine have an international dimension that favours the non-geographic style of online delivery.

4.2.3 Thus, the decision to invest in OLDL programmes was seen as a logical expression of the College's strategic objectives: increased PGT numbers, internationalisation and addressing the changing demographic of our students.

4.2.4 Based on these and other considerations, the decision was taken to structure PG provision under a single graduate school and to invest heavily in the development of OLDL programmes.

4.2.5 The first programme, Pain Management, was launched in 2005. The College currently operates 15 OLDL programmes (see figure 4.2) and is preparing to launch three more in 2011. One of the programmes, the Edinburgh Surgical Sciences Qualification (ESSQ), won the 2010 National e-Learning Award for Best Online or Distance Learning Programme in Education.

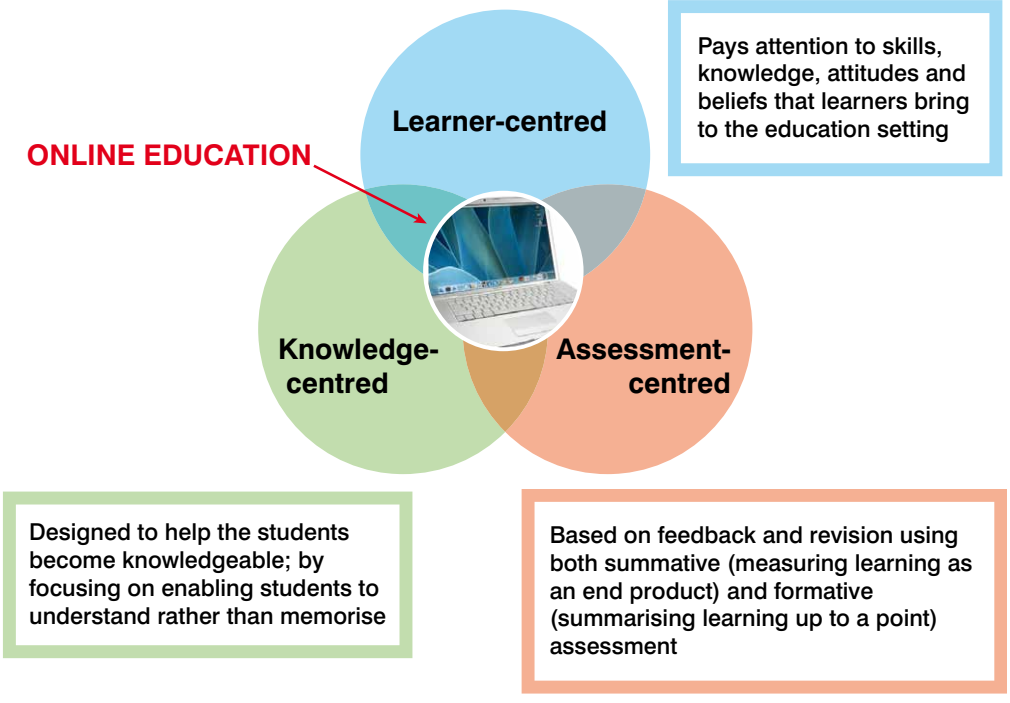
4.3 Student engagement and support

4.3.1 An online course is quite different from traditional face-to-face learning environments, but it offers unique opportunities for students. Many online learners find they have a greater interaction with tutors and peers and they can access the learning materials at a time and place that suits them. Typically, students receive learning materials in a PDF or HTML format on a weekly basis and are continuously assessed on their understanding and appreciation of these materials and their content. Unlike those on on-campus programmes, the students have time to postulate their thoughts before contributing; a shyer student will be more likely to post their thoughts on a topic in an online environment.

4.3.2 This is a very different style of learning to that which might be attained in a lecture theatre, where the student listens to the lecturer and makes their own notes depending on the elements that they feel to be important. In the online environment the notes are provided, the student has the freedom to read the materials at their leisure and reflect on the content. Effective online tutors challenge their students by making them think about the material and focussing their reflections on specific questions. The aim is to encourage the student to understand and subsequently transfer knowledge. Feedback is provided by the student cohort as well as subject experts. Not only does this encourage peer-to-peer learning by recognising the conceptual and cultural knowledge that the individual students will bring with them, but it also demonstrates comprehension and encourages deep learning.

4.3.3 In many ways, online teaching can offer the perfect fit between a learner-centred, an assessment-centred and a knowledge-centred learning environment as illustrated in figure 4.1.

Figure 4.1: The online learning space[37]



4.3.4 Students enrolled for the online programmes are a self-selecting group. Naturally these students have chosen the subject they hope to study and, given the subject matter, they will have similar educational backgrounds. Online learning is not for everyone and many students would shy away from this style of teaching. In addition, a three-year part-time programme requires a very high level of commitment. The student's motivation to log on regularly to access their course must be rewarded with high-quality teaching materials.

4.3.5 For example, in the ESSQ programme, emphasis is placed on creating an online community in which students learn in a supportive environment. This is facilitated by providing students with their own personal profile page (with photographs) in the virtual learning environment (VLE) alongside profiles of the e-tutors who teach on the course. Non-academic bulletin boards allow students to engage in online team-building and social networking. These are important tools to overcome problems of isolation and diminished motivation which contribute to the higher drop-out rate in online versus on-campus programmes.

4.3.6 The learning materials embedded in ESSQ are designed to sustain student motivation, by being both active and contextual. The formative assessment tools involve both performance-based assessments and selected-response tests with feedback. These allow students to regularly evaluate their learning and modify their progress, as well as provide opportunities, through e-tutor-led discussion boards, for students to learn from each other. Students are encouraged to utilise the library's online resources and, in addition, passwords to access three key online texts on Elsevier's Student Consult are provided at the start of each year as well as a hard copy of one of the core textbooks for the course.

[37] Bransford J.D. with Cognition and Technology Group at Vanderbilt. "Designing environments to reveal, support, and expand our children's potential." In S.A. Soraci and W. McIlvane (eds.) (1998) Perspectives on Fundamental Processing in Intellectual Functioning (Vol 1), pp. 313-350. Greenwich CT: Ablex.

4.3.7 A major difference to traditional programmes is that all OLDL assessments must be open-book unless the students attend examination centres (as in ESSQ, for example). The option of a closed-book examination is not available. The style of questions and the expectations are very different to an on-campus examination. Some programmes ask the students to prepare presentations. However, the current state of network speeds in some parts of the world prevents live presentation for the time being. Instead, students on the International Animal Health programme are expected to annotate their slides with what they would discuss during their talk. This programme, in common with several others, also uses several discussion-based assignments.

4.3.8 In ESSQ, the key principles that underpin assessment activities are evidence-based practice and the application of theory to clinical practice. The principle of constructive alignment underpins all assessments, ensuring that the assessment tasks are aligned with the specific course objectives, the content of the course and the teaching methods employed.

4.3.9 In common with some other programmes, ESSQ employs an academic facilitator whose role is to co-ordinate the international network of e-module leaders and e-tutors; ensure that students are appropriately informed to participate in learning activities and assessment; monitor student progress and provide regular formative feedback; and evaluate and improve the programme by collating student feedback. Administrative support for students is provided by two dedicated ESSQ administrators, ensuring correspondence between students and the programme team is dealt with in a timely manner.

4.3.10 Pastoral support to our distance learners can be provided by all members of the programme team, including the Year Directors appointed for each of the three cohorts. Much effort is made by the academic facilitator and administrative staff in contacting students to enquire about their participation and implement remedial action in the event of mitigating circumstances. Details of all student support services are included in the course handbook which is emailed to individual students at the start of term, and is available electronically throughout the course via the VLE. Details of the PGT student representative are emailed to all students at the start of the academic year.

4.4 The learning environment

4.4.1 Some of our programmes are delivered using WebCT. While this is generally satisfactory, WebCT is bandwidth-heavy and some programmes have experienced problems with long load times for some connections (particularly in Africa). Typically, this is manifest in an inability to download PDFs from within WebCT. If the problem persists, the PDF documents are sent to the student by email.

4.4.2 Some of our online programmes use custom-built e-Learning platforms, for example eeSURG[38] used by ESSQ. The platform provides intuitive navigation of resources, tracking of the programme curriculum, access to course material and interaction with course tutors and other students. Course content is delivered in a modular format with identifiable objectives and activities aligned to the associated knowledge-base entries. Formative multiple choice questions (MCQs) with

[38] eeSURG VLE: http://learning.essq.ed.ac.uk

feedback answers are embedded within the interactive case scenarios and links are provided to supplementary resources, including electronic versions of course books and journals throughout the wiki material.

4.4.3 The activity model – the contextual base for applying the knowledge-base – is provided by Labyrinth[39], a tool for authoring and delivering case narratives that was also developed in-house. Labyrinth was designed with the goal of supporting the development of richly engaging, narrative medical cases that invited users to take control of their own decisions and, by extension, their own learning, and develop the critical analysis skills to face effectively the consequences of those decisions. Students in years 1 and 2 have access to e-tutor-assessed collaborative discussion boards[40], where they are expected to lead debate and facilitate interaction with others, and bring original material to support their arguments. In year 3, formative feedback from e-dissertation supervisors is provided for project outlines, summaries and e-posters, ahead of the submission of the e-dissertation.

4.4.4 The online MSc in Translational Medicine includes the Translational Medicine Exercise in Problem Solving (TMEPS). This is a team project in which students are allocated to mixed-background teams to generate one chapter for each course they study. For the Certificate stage (6 courses), the students apply TMEPS to a disease system, relating each chapter to the theme of a course, covering a broad sweep of translational medicine from molecules to population. For the Diploma stage (4 courses), TMEPS relates to taking an innovation (e.g. drug, diagnostic, etc.) through to commercial or therapeutic use. This covers the practical steps of translation from idea to application. The chapters are produced in a Wiki. Team leaders are assigned and peer review forms a component of the marking. Clinical tutors are assigned to guide the student groups. The whole exercise is designed to develop practical skills that are relevant to the workplace.

4.4.5 The MSc in Equine Science uses real-time tutorials in Skype and Second Life. Wimba is used for real-time student seminars that form part of the student assessment. Other assessment elements include interactive group work and peer assessment using WebPA. Students on this programme keep reflective portfolios on PebblePad, which is also used for discussing hopes, concerns and expectations with the programme director at the start of the programme and for assessment in the dissertation year.

4.5 Management and organisation

4.5.1 At the founding of the three colleges it had been decided to form a single graduate school for the whole of CMVM. Within this structure, quality assurance and enhancement processes were applied in exactly the same way to all masters programmes, whether on-campus or online.

4.5.2 New programme approval has been the responsibility of schools, colleges and the University. In CMVM, at the College level, the Postgraduate Studies Committee (before 2009) and the Postgraduate (Taught) Committee (post 2009) examine applications for new programmes, scrutinising their academic and business cases. The College produces a handbook 'College of Medicine and Veterinary Medicine Guidelines: Developing and Approving New Postgraduate Courses and

[39] Labyrinth: http://labyrinth.mvm.ed.ac.uk
[40] eeSURG Discussion Board: http://demo.essq.ed.ac.uk/Surgical_Oncology_Discussion.asp

Programmes, Modifying Current Postgraduate Courses and Programmes'[41] that guides the process, and regular workshop sessions are held with the College New Programme Team. Annual monitoring is structured around completion of a form that reports on the use of feedback from staff, students and external sources. Online programmes are reviewed as part of the standard periodic review process (PPR), which looks at all postgraduate provision in each school on a 5-year cycle.

4.5.3 A working party was established by the College, with the remit of recommending changes to the University's Regulations and Code of Practice for Taught Postgraduate Programmes in order that these take account of e-Learning/OLDL programmes. The working party, which reported to CMVM PG Studies Committee in March 2008, and from there to Senatus Postgraduate Studies Committee, had representatives from the two Colleges with e-Learning programmes at that time: CMVM and CHSS.

4.5.4 In the University's regulations (DRPS), a number of changes were recommended, mostly in the sections covering application and registration and residency requirements. Reference to candidates showing that they will be able to 'attend' the prescribed courses would have to be reworded as 'participate' or 'complete'. The working party also questioned the meaning of 'leave of absence' for distance learning students.

4.5.5 Changes were also required to make flexible study, such as part-time study over three years (Certificate in Year 1, Diploma in Year 2, and Masters in Year 3) more generally accepted.

4.5.6 In the University's Code of Practice for Taught Postgraduate Programmes, the section 'What happens on arrival?' needed to be reworded to include those students who would never physically 'arrive' in Edinburgh. There were numerous references to meetings with dissertation supervisors, leave of absence and residency that also needed attention.

4.5.7 Specific guidance was needed on how OLDL students can access services and facilities. Consideration also needed to be given to the advice on staff-student liaison committee meetings and the wider issue of distance-learning student representation on committees.

4.5.8 Since 2009, a number of working groups have been established by Senatus and its committees to revise different parts of the University Regulations. The Assessment Regulations have been under review throughout 2010/11. Through its representation on these working groups, CMVM is ensuring that the new regulations take account of OLDL students and their unique requirements while, wherever possible, treating them in exactly the same way as on-campus students.

4.6 Feedback and evaluation

4.6.1 Student feedback takes different forms in our OLDL programmes. Student feedback is obtained continuously by the very nature of the online environment: the discussion board provides a constant source of contact between the students and the programme team. Relevant information is posted directly for all students to see and comments received from the students are aired in the same manner. Any

[41] CMVM Guidelines: Developing and Approving New Postgraduate Taught Programmes and making substantial changes to existing programmes 2011-12 http://docstore.mvm.ed.ac.uk/PoliciesAndProcedures/CollegeManagement/Guidelines_approving1112.pdf

issues regarding the course are highlighted through this format. Specific opinion is also sought at the end of each course or semester by online questionnaires. In Equine Science these course review surveys are supplemented by staff-student liaison meetings held via Skype. All programmes have a designated contact person, usually the programme director or academic facilitator, who may be contacted at any time during the programme with feedback, views or suggestions.

4.6.2 Our experience has been that the existing quality processes work remarkably well for OLDL. Minor changes, in recent years, have meant that the annual monitoring form now differs between on-campus and online, the former going into more detail about the number of lectures, seminars, tutorials etc. and the latter asking about the style and modes of teaching and assessment. Both forms ask about feedback from students (including how it was sought), feedback from staff and external examiner(s). Both forms ask whether the students' views have been communicated to the teaching staff, the students, the Head of School and the External Examiner. In order to promote good scholarship, College policy now requires, as a minimum, that the first piece of each student's submitted coursework should be put through Turnitin software and feedback given to the student. This is also checked through the annual returns.

4.6.3 Unhelpfully, the Postgraduate Taught Experience Survey (PTES) does not differentiate between online and on-campus programmes, so the College relies heavily on internal questionnaires and student feedback.

4.6.4 Following staff changes in the College and the formation of separate directorships for PGT and PGR, a review of all masters programmes was initiated in 2009. In the first year it looked at OLDL programmes. The recommendations of the review are summarised below.

4.6.5 In order to make better use of staff and resources across the University there is a need to foster a culture of partnership with other colleges. The review team recommended that the University put formal mechanisms in place for the sharing of courses across colleges.

4.6.6 The review team recommended that the PG College Office continue work with central services to develop and enhance services and procedures for OLDL students and for the Rules and Regulations to reflect this type of student. This is being taking forward as part of the Distance Education Initiative (DEI).

4.6.7 The review team recommended that all new programmes go through a more rigorous review process (which starts at least 18 months before the first intake of students) before they are approved. Schools and colleges can then have a better understanding of what is involved in the process of starting the new programme.

4.6.8 Much of the expertise in teaching and organising OLDL programmes exists within programme teams (for example in enhancing student experience, assessment, use of social media in conversion of applicants, etc.). The review team recommended that the PG Office and associated central services deliver more events to enable synergies and sharing of best practice across the programmes.

4.6.9 Our experience with OLDL has broadened our understanding of what a student is: very few of our online students are 18-25 year olds, straight out of school;

none of them studies full-time and many are in full-time employment somewhere in the world. The process has also deepened our understanding of teaching and assessment. Many of our programmes use innovative assessment methods including, for example, the use of discussion boards as an assessment tool.

4.7 Forward look

4.7.1 All learning materials are designed to minimise the inequalities that exist across the broad spectrum of users accessing the promotional website and the programmes' content as we cannot risk compromising those who are using older equipment. Tracking information from the website allows us to gather information relating to our potential audience, such as preferred browsing platforms down to the screen resolution. For example, we know that 12% of unique visitors to the International Animal Health website (n=10,176) have a screen resolution of 800 x 600, therefore images are always presented so that they are no larger than 600 pixels in diameter which ensures that students who do not have larger screens are able to view the image as a whole.

4.7.2 Student feedback has highlighted that many of the African students are accessing course materials in internet cafés, which frequently experience problems with unreliable power and poor internet connections. Given the demographics of our students, we have made every effort to adapt the presentation of course content to ensure maximum accessibility for all and have provided channels of communication that are external to the requirement for computer access.

4.7.3 In 2007/08, some programmes introduced an SMS channel of communication with our students using their mobile phones. This development arose from the need to retain contact with them when away from their computer. With so many based in developing nations we felt that it was important to provide an additional channel of communication for those occasions when internet access is not available. One example of the success of this form of communication was highlighted in the autumn of 2007 when the Internet delivery in Cameroon was severed due to problems with the undersea cable. We were able to contact our students as soon as we were aware of the problem and put their minds at ease concerning access to materials and looming assignment deadlines.

4.7.4 On ESSQ, students are expected to complete at least 10 hours of self-directed study per week and a significant proportion of this time is spent discussing the learning objectives with tutors on assessed discussion boards. A number of foundation-year students have indicated they are often overwhelmed by workload. This has not had a significantly adverse effect on programme outcome in terms of pass-rates/progression to date, but is something the Programme Team will examine in detail and may influence the advice issued to potential students regarding the preferred stage of entry to the programme.

4.7.5 The ESSQ programme delivered its first group of graduates in July 2010 and has demonstrated in its short existence that the format meets with strong student approval, resulting in increasing recruitment year on year; the number of applications was 50 in 2007 rising to 155 in 2010. The format is also leading to a significantly improved success rate for ESSQ students in the Membership

examination of the Royal College of Surgeons (Edinburgh); the pass rate for ESSQ students is circa 15% higher than non-ESSQ students. These figures add credence to the positive appraisal of the programme to date and will contribute to future student engagement and motivation.

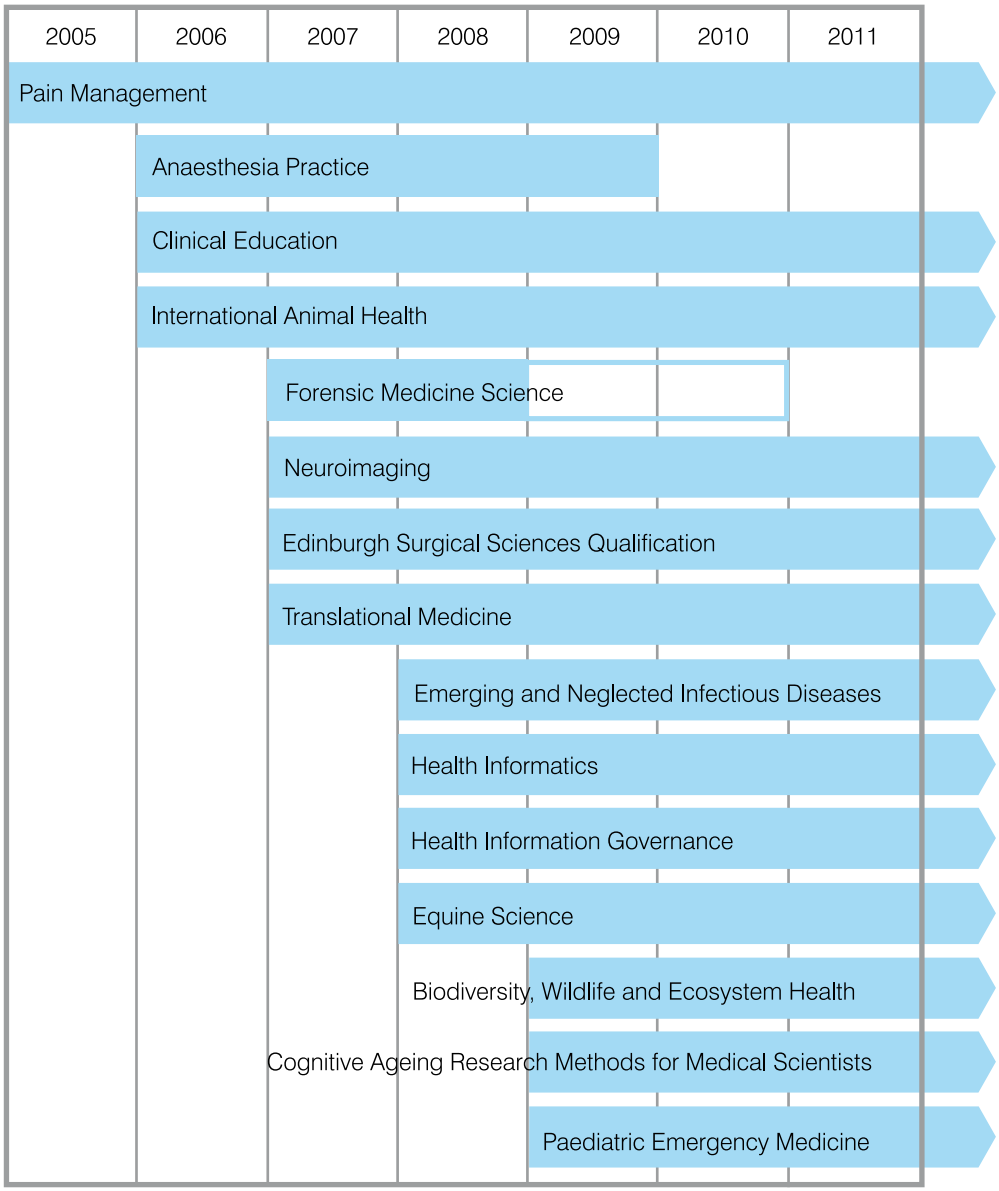
Expanding distance education at the University

4.7.6 As a consequence of our successful experiences of online distance education as described above, plus similar examples in CHSS in Law and Education, we have decided to expand substantially our provision of programmes delivered in this form at PGT level, with the first of the new programmes being offered from academic year 2012/13. Primary reasons for the expansion are to offer access to University of Edinburgh PG education to those who, for reasons of time, location or finance, are unable to participate at present, and to offset the threats posed by visa restrictions and a downturn in global travel options.

4.7.7 We are clear that PGT programmes offered in online form are to be of no less quality than our on-campus programmes, and shall work to the same quality assurance procedures for both approval and regular review. To ensure that the experience of students taking such programmes is comparable to that of on-campus students, we are revising our central and school student support mechanisms, introducing better pedagogical support for staff supporting distance learners, and building a technology infrastructure suited to this new, and more demanding, mode of teaching and learning. The work is supported by a £4.5m fund over 5 years, with robust central oversight of the programmes funded. By 2020, we expect to have at least as many PGT students studying at a distance as on campus, and for all academic subjects to be involved to some degree[42].

[42] Distance Education Initiative: http://www.committee.kmstrategy.ed.ac.uk/docs/open/UPDATED_Paper-C_Distance-Education_KSC-29Oct10.pdf

Figure 4.2: Development of distance education programmes in CMVM



List of acronyms

Acronym	Title
AV	Audio Visual
CHSS	College of Humanities and Social Science
CMVM	College of Medicine and Veterinary Medicine
CPD	Continuing Professional Development
CPE	Continuing Professional Education
CSE	College of Science and Engineering
DEI	Distance Education Initiative
DRPS	Degree Regulations and Programmes of Study
EEMeC	Edinburgh Electronic Medical Curriculum
eeSURG	Edinburgh Surgical Sciences Qualification virtual learning environment
ESSQ	Edinburgh Surgical Sciences Qualification
EEVeC	Edinburgh Electronic Veterinary Curriculum
EUSA	Edinburgh University Students' Association
HEA	Higher Education Academy
HEFCE	Higher Education Funding Council for England
ICT	Information and Communication Technology
JCMB	James Clerk Maxwell Building
JISC	Joint Information Services Committee
KB	The King's Buildings
KBC	The King's Buildings Centre
KBL	The King's Buildings Library
L&TC	Learning and Teaching Cluster
LTS	Learning and Teaching Strategy
LTSAG	Learning & Teaching Spaces Advisory Group
LTSTS	Learning & Teaching Spaces Technology Section (LTSTS) (formerly known as the Media & Learning Technology Service (MALTS), and Audio Visual Technology Services (AVTS)
MCQs	Multiple Choice Questions
MIT	Massachusetts Institute of Technology
MLRP	Main Library Redevelopment Project
OLDL	Online Distance Learning
PeLF	Principal's e-Learning Fund
PPR	Postgraduate Programme Review

Acronym	Title
PRS	Personal Response System
PSRBs	Professional Statutory and Regulatory Bodies
PTES	Postgraduate Taught Experience Survey
QAA	Quality Assurance Agency
QAC	Senate Quality Assurance Committee
RA	Reflective Analysis
RTLs	Research Teaching Linkages
SFC	Scottish Funding Council
SMS	Short Messaging Service
TEAL	Technology Enabled Active Learning
TMEPS	Translational Medicine Exercise in Problem Solving
TPR	Teaching Programme Review
VLE	Virtual Learning Environment
VPAA	Vice President Academic Affairs

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http://local.stv.tv/edinburgh/news/14780-edinburgh-students-tackle-real-life-challenges-with-hsbc/

31. Enhancing Graduate Attributes report for QAA, Jan 2008: Paper copy available.

32. CHSS Quality Assurance and Enhancement:

http://www.hss.ed.ac.uk/AcademicAdmin/QualAssurance/

33. Quality enhancement – good practice:

http://www.ed.ac.uk/schools-departments/academic-services/quality-unit/quality-enhancement/good-practice

34. External Examiners' comments:

Paper copy available.

35. E-Learning Strategy Implementation Plan:

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36. Strategic Plan 2008-2012:

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37. Bransford J.D. with Cognition and Technology Group at Vanderbilt. "Designing environments to reveal, support, and expand our children's potential." In S.A. Soraci and W. McIlvane (eds.) (1998) Perspectives on Fundamental Processing in Intellectual Functioning (Vol 1), pp. 313-350. Greenwich CT: Ablex.

38. eeSURG VLE:

http://learning.essq.ed.ac.uk

39. Labyrinth:

http://labyrinth.mvm.ed.ac.uk

40. eeSURG Discussion Board:

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41. CMVM Guidelines: Developing and Approving New Postgraduate Taught Programmes and making substantial changes to existing programmes 2011-12

http://docstore.mvm.ed.ac.uk/PoliciesAndProcedures/CollegeManagement/Guidelines_approving1112.pdf

42. Distance Education Initiative:

http://www.committee.kmstrategy.ed.ac.uk/docs/open/UPDATED_Paper-C_Distance-Education_KSC-29Oct10.pdf

43. Appleton Tower teaching studio:
http://www.flickr.com/photos/jimsheach/sets/72157623873406983/

44. Appleton Tower Concourse and Café:
http://www.flickr.com/photos/jimsheach/sets/72157625675233819/

45. JCMB Magnet Café:
http://www.flickr.com/photos/jimsheach/5008817804/

46. JCMB Large teaching studio:
http://www.flickr.com/photos/jimsheach/4099824481/

47. JCMB Plectrum-shaped group tables:
http://www.flickr.com/photos/jimsheach/4099824215/in/photostream/

48. JCMB Small teaching studio:
http://www.flickr.com/photos/jimsheach/5008213275/

49. JCMB Group Study Room:
http://www.flickr.com/photos/jimsheach/3928139745/in/photostream/

50. JCMB, Maxwell's Equations:
http://www.flickr.com/photos/jimsheach/5008816000/

Appendix 1: the Appleton Tower cluster & teaching studios[43]

1. The aim of the teaching studios was to design out opportunity for prolonged 'face the front' presentation, thus moving away from the traditional layout of classrooms where everyone faces the presenter. The key requirements were to:
   - facilitate activity in groups of up to six, with or without the use of IT;
   - make available good, shared IT-- a PC and high quality display screen at each group table and limited connectivity for laptops, etc. but not to be used as a computing lab;
   - support classes run by a class leader and a mobile team of tutors to steer collaborative work;
   - support whole-class briefings from anywhere in the room using a radio microphone and visuals distributed to all screens but to discourage lengthy presentations;
   - include a control point with visualiser and smart board display as well as personal response systems (PRS) and associated analysis and display technology;
   - enable material generated at one local PC to be captured and displayed across the room.
2. There was some caution in committing so much prime space to a single, innovative facility and so it was agreed to introduce movable partitions to create a large central room and two extensions which could be separated off and used independently if required. There was also a perceived need to maximise the seating capacity.
3. Group tables were designed in the shape of an elongated 'D' with the screen fixed to the table along the short, flat side. Experiments were undertaken with plywood cut-outs to decide on the best proportions to get students involved, engaged and collaborating on projects, promoting face-to-face interactions, one-to-one and one-to-many, whether or not using IT. The tables (16 in total) were positioned and oriented in ways determined to a large extent by the elongated shape of the room, various pillars and the restrictions imposed by the movable partitions. Comfortable chairs on castors enabled temporary movements so that everyone could see the class leader during briefings at the control point or wherever located.
4. What was formerly a vast, dreary and empty concourse area was redesigned to incorporate a cyber café[44] (catering outlet, apron of café-style tables/seating and 'bar-level' PCs) and the whole area was brightened up with natural light. Other opportunities were taken (e.g. in a 'culturally redundant' cloakroom) to create niches to introduce study areas and IT. In this way, a cluster of informal learning spaces and a variety of more formal teaching environments was created.
5. All spaces were made fully accessible with wheelchair ramps where required.

[43] Appleton Tower teaching studio: http://www.flickr.com/photos/jimsheach/sets/72157623873406983/
[44] Appleton Tower Concourse and Café: http://www.flickr.com/photos/jimsheach/sets/72157625675233819/

6. Preliminary Review. Although not a formal evaluation, observation of use led to the following provisional conclusions:

- The teaching studio layout, used well, can inspire students to better levels of engagement with the work and produce a very positive class atmosphere;
- There is no unique definition of 'used well' – in fact the very existence of the teaching studio can inspire academics to devise and trial new pedagogic approaches that they would never have contemplated if only conventional spaces were available;
- The cyber-café and its location adjacent to a variety of teaching spaces were extremely well received. There was visual evidence of its use for work (open notes and computer applications, used individually and collaboratively), as well as for social purposes;
- Students' learning styles vary and it is important for tutorial staff to pay attention to varying levels of engagement within the class and to act accordingly;
- If academics intending to present relatively conventional classes are assigned to the teaching studio (perhaps as the only space available at a particular time), the results can be disastrous and the space severely criticised;
- There is a need for well thought-out briefing material for academics and classes using the teaching studio to make clear its purpose and give tips on its use, without laying out a unique 'right way'. LTSTS now offer regular training sessions on the operation of the teaching studios and there have been informal, yet very effective, observation sessions where staff interested in using the teaching studios in their own teaching are encouraged to visit and observe classes that already make use of these spaces;
- The D-tables were found to be very effective for student interactions, especially with use of IT. However, opinions differed over their effectiveness when a tutor joined a full group of six students for a significant interaction not using IT (e.g. writing down mathematical equations) when the screen tended to get in the way;
- Problems were experienced with congestion due to the high density of tables and seating (and there were particular issues to do with solar gain, room overheating and ventilation). It was concluded that greater space is needed for the diversity of activities which can be taking place simultaneously, and some variety of furnishing could be advantageous;
- The position and, indeed, the need for such an elaborate central control point should be reviewed with the objective being to maximise interactions and engagement;
- The (expensive) function enabling work generated at any table PC to be displayed to all screens in the room was not used to any noticeable extent;
- The partitions were an undesirable complication; cumbersome and used as little as possible.

Appendix 2: The James Clerk Maxwell Building – Learning & Teaching Cluster

1. In summary, the Learning and Teaching Cluster (L&TC) comprises the existing three large lecture theatres (now equipped with PRS and up to date AV/IT), one large and two small teaching studios, two open common room areas, a quiet study room, three bookable group study rooms and three open study pods, with WiFi throughout. There are about a dozen other teaching rooms located elsewhere in JCMB so this facility represents a significant cluster.

2. The North and South Common Rooms, linked via 'The Magnet'[45] catering outlet (use optional), offer a variety of furnishing for different levels of formality, group size and comfort for social and study purposes; large and small café-style tables, high level PCs, clusters of sofas, stools and bean-bags.

3. The alcove spaces opposite each lecture theatre now provide Study Pods with tables, stools and plenty of white boards (including white table tops) where students can work, write, discuss and brainstorm. They are convenient for follow-on discussions after lectures, resolving difficulties and generating further ideas, and lecturers can drop in here to engage with students after lectures without the pressure to vacate the theatre because of an incoming class.

4. At the heart of the cluster, the large teaching studio[46] has several innovations derived from experience in the Appleton Tower. It features twelve 'plectrum-shaped' group tables[47] with free-standing monitors and white-board/flip-charts. Initially conceived in the University of Melbourne, Australia, the concept was further developed in prototyping sessions involving students using a mock-up to optimise many interactions: up to six students using the IT with good eye-to-eye contact and screen visibility; up to six (or even nine) in group discussion and/or with a presenter (group member or a tutor) at the board; two or three students working together along a side or across a corner.

5. The room is not too densely furnished and there are three break-out areas with informal seating. The control point is minimal but provides visualiser and smartboard facilities which also link to the twelve display screens. The room is deliberately designed to discourage prolonged presentation, whilst facilitating short briefings with a radio-microphone from anywhere in the room, preferably given on-the-move to increase interaction.

6. The two small teaching studios[48] are designed primarily for more senior classes with experience of the large teaching studios. They are an experimental attempt to work with less 'bespoke' furniture. Each features four wall-mounted workstations with onboard PC, laptop connectivity, monitors and whiteboards. Four moveable tables, each seating up to six students may be located adjacent to the workstations or used flexibly in other configurations. The rooms may be booked by staff for classes or by students through the MyEd system when not required for classes. When not booked they are available on open access for study purposes.

[45] JCMB Magnet Café: http://www.flickr.com/photos/jimsheach/5008817804/
[46] JCMB Large teaching studio: http://www.flickr.com/photos/jimsheach/4099824481/
[47] JCMB Plectrum shaped group tables: http://www.flickr.com/photos/jimsheach/4099824215/in/photostream/
[48] JCMB Small teaching studio: http://www.flickr.com/photos/jimsheach/5008213275/

7. The three Group Study Rooms[49] are designed for student group activity which requires some element of seclusion, perhaps in order to share presentations. Each accommodates up to ten students with a 'plectrum-shaped' group table, side table, computer, smart board and whiteboards. They are bookable online by students but not by staff. When not booked, they are available on open access for study purposes.

8. The Quiet Study Room has conventional desks for private study and a rule of silence. It is available on open access without booking.

9. The Cluster embodies several overall design features: lightness and airiness, opening up the core of an otherwise warren-like building; several large windows providing visual connections with the rest of the Campus; comfort, variety and flexibility; ownership by users, particularly students; ability to consume food and drink while studying.

10. There are several visual features of interest and relevance: the hologram of James Clerk Maxwell; various versions of Maxwell's Equations (electromagnetic theory) cut into the flooring[50]; portrait of Professor Peter Higgs (theory of the Higgs boson and LHC experiment); Max Born collection of images of great physicists; and plans for more elaborate exhibitions in due course.

11. All spaces were made fully accessible with wheelchair ramps where required.

12. Preliminary Review. Although not a formal evaluation, the following informal observations have been made:

    - All comments on the Cluster suggest it is greatly welcomed by students and staff. It is very well used in term-time. The new social, student-centred spaces have changed the usage and the ethos of the building. Prior to the changes this part of the building was sparsely used, mainly during mealtimes. "It's completely changed that... in really quite subtle ways, there's much more interaction between students and staff, it's a much nicer place for everyone to be... we have project meetings with students down here ... you can write on the tables and write on the walls ... you see people just interacting more". (Professor Simon Bates, Dean of Learning & Teaching, College of Science & Engineering)
    - In the Common Rooms one sees a variety of activities including both private and collaborative study, with open lecture notes much in evidence. Students appreciate the informal and relaxed atmosphere and said they were more likely to stay for a long time talking in spaces that allowed food and drink. "It's airy, cleaner. It's just nice. I love it... because there's the lighting, the view and food". There is "a sort of a community, with the nicer coffee shop and better study spaces." (Physics graduate 2010, now a postgraduate student)
    - The teaching studios and Group Study locations helped to tap into the notion of hidden curriculum. The spaces have opened up opportunities for students to challenge each other, make a point and engage in problem-solving in a safe group. During the prototyping session the students identified the usefulness of whiteboards for exploration of ideas with the group and fixed computer and own laptops for mini presentations. "This

[49] JCMB Group Study Room: http://www.flickr.com/photos/jimsheach/3928139745/in/photostream/
[50] JCMB, Maxwell's Equations: http://www.flickr.com/photos/jimsheach/5008816000/

allows students to practise presentations informally and obtain feedback continually throughout the courses" (Professor Simon Bates, Dean of Learning and Teaching, College of Science and Engineering)

- The large teaching studio is found to be a congenial place to work and students have begun to use it unofficially when not booked for classes. There have been cases when students have asked, and been allowed, to use a spare table for their own study during some other formal class, so that a more blended use of space is developing
- The new spaces bring old and new learning technologies together. When doing group projects and working out problems, students use all available technologies. The flexibility of using tables as whiteboards in the common space and having whiteboards on the walls is liberating. "I honestly think that was one of my key learning tools for the whole of the exams, this whiteboard pen, because, like I said, it wrote on windows and everything... you can stand back from it and have a look at what you've just done, like, you've solved this... just picturing it, it's brilliant". (Physics graduate 2010, now a postgraduate student)
- Easy electronic access has made group work easier, including the computer monitor that all students can see at once, whiteboards and student-owned laptops. "Because if someone forgets, instead of having your questions in front of you all individually you just see them on the computer... And if you have, some sort of, argument with someone over who's right and who's wrong and the tutor's not around, then you look it up... And also you've got the supporting material... from the teaching website at your fingertips." (Postgraduate student)
- The primary aim of the learning design was to facilitate dialogue for learning. Students have had positive experiences of learning in groups in and outside tutorial times. They felt they were "pulled along by each other". The group tables "are done especially so you've all got equal weighting. For working on a group essay, when the group went through it on the large monitor and one person sat by the computer for editing, it was brilliant, absolutely brilliant. I don't know how you did without them, honestly, because we just, every single group would book those rooms" (Physics graduate 2010, now a post-graduate student)
- "Later in the day... you will see in the Group Study Rooms either a group of students on their own or a group of students with a member of academic staff going over something." (Manager, LTSTS)