Enhancing
Teaching-Learning Environments
in Undergraduate Courses

ETL
project

Subject Overview Report

Economics

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T·L·R·P
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Subject Overview Report:

Economics

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1. INTRODUCTION

a. Overview of the Report

The following report gives an account of a set of investigations into a range of teaching and learning environments (TLE) of undergraduate courses in Economics located in three different regions of the UK. The investigations were carried out during the period 2001-2004 and in settings which contained considerable variation in terms of type of institution, curriculum, size and nature of the student intake, length of programme, nature of the intended learning outcomes and modes of assessment used.

Members of the project team worked collaboratively with three partner departments and provided them with rich empirical data on a first and final year undergraduate course unit. Questionnaire, interview as well as documentary data were collected, resulting in 1,664 completed student questionnaires, 79 interviews with 268 students and 25 interviews with 26 academic staff. These data were used to identify ways of encouraging high-quality learning, both existing as well as new ones, with a view to reviewing the effectiveness of the course units and fine-tuning them, if appropriate. Changes made to the course unit or aspects of the TLE which merited further attention were followed up by further research. The main phase of the project was preceded by preparatory work, which comprised a review of the literature on teaching and learning in Economics and of teaching quality assessment reports as well as initial telephone interviews with a cross-section of highly rated Economics departments.

The present report aims to provide a general overview of the Economics strand of the ETL Project. It begins with a description of the project design and its conceptual basis, followed by a literature review. The largest proportion of the report is devoted to the main project phase, focusing on the six settings investigated, the samples and the key findings. Issues related to the students, the discipline and TLEs in Economics are discussed. The discussion includes selected summaries of the quantitative data and excerpts from the interviews, which have been included for illustrative purposes only. More comprehensive and more detailed accounts of the data and their analysis have been provided in the confidential reports produced for the collaborating partners and in several papers which were presented at conferences and written up for publication (Reimann 2004, Reimann 2005, Reimann and Jackson in press, Reimann and Xu 2005). The report finishes by pointing to possible implications for ways in which teaching and learning in Economics may be successfully enhanced.

b. Introduction to the ETL Project

The Teaching and Learning Research Programme (TLRP) was set up in 2000 and invited bids for research studies designed to make educational research findings more relevant to practitioners and policy makers. The relevance was to be ensured by setting up projects in which educational researchers investigated ways of improving the engagement of learners and their attainments while working closely with colleagues directly involved in the design and teaching of courses. At university level, previous research on teaching and learning had tended to look for general principles that could be applied across subject areas, and had certainly managed to describe how students learn and study, and to understand the main influences on their learning. However, colleagues in subject departments often saw the research findings as being too remote from their own experience and specialism. The ETL project was thus designed to look at teaching and learning across a range of subject areas.

Here, it is only possible to describe the research strategies in outline and indicate some of the main findings within the subject area, but further information about the work of the project, can be found on the project web site at http://www.ed.ac.uk/publications.html. Electronic documents relating to specific aspects of our work will be indicated in the subsequent sections and these are also available on the project web site.

One of the problems in introducing educational research findings to colleagues in other disciplines is that the nature of the data collected, the analyses carried out, and the ways in which conclusions

are reached, can be very different to those adopted in other research areas. So, what approaches to research are commonly found in research into teaching and learning? Given the nature of the subject area, the concepts used cannot be as precisely defined as in, say, the physical sciences, nor can measurements relating to those concepts be carried out with the same validity and reliability found in those areas. As a result, educational researchers often use designs that come at the problem from several different directions and use complementary methods of measurement. While there are well- established methods of analysis for both large-scale surveys and small-scale interview studies, bringing results from the two approaches together depends on experience and judgement. Often, the researcher has to rely on developing an argument which draws on different strands of evidence, all of which contribute in differing ways to establishing a finding, rather in the way that a barrister uses evidence in a trial to establish a balance of probability in interpreting the evidence. And that is the approach used in the ETL project.

i. *Outline of the research design*

The guidelines established for TLRP required projects to work collaboratively with potential 'users' of the eventual findings and also to draw on international expertise. We did this initially by appointing a Subject Adviser who had extensive knowledge of the subject area (Professor Tony Antoniou), and well-respected researchers into teaching and learning (Professor David Perkins of Harvard and Emeritus Professor John Biggs who had posts in Australia and Hong Kong).

During the first year of the study, the researchers examined Teaching Quality Assessment Reports (and the QAA equivalents) from 16 departments that had been rated as excellent, and followed up eight of them with telephone interviews with staff. Analyses of these data provided a framework for describing differences between departments in terms of administration, research, professional liaison, teaching and student support, as well indicating variations in the mix of students entering the courses in relation to the teaching (see Phase 1 Report).

In parallel with this work, the project team also developed two questionnaires for use with students (see Technical Report on Questionnaire Development). The first of these – Learning and Studying Questionnaire (LSQ) - was given at the start of each course unit and asked students about their reasons for coming into higher education and choosing that particular course unit, but with its main focus being on the ways in which the students had been going about their studying up to that point. The second questionnaire – Experiences of Teaching and Learning Questionnaire (ETLQ) - asked, first, about the ways students had approached their studying in that specific course unit, but concentrated on their experiences of the TLE provided (i.e. all the various forms of teaching, learning resources, assignments and assessment they had encountered). It also asked about the demands they felt the unit had made on them and what gains in knowledge and skills they believed they had made. Students also gave self-ratings of their academic progress which would be used in conjunction with actual grades awarded by the institution.

In the main part of the project, we have being working with academic staff in departments, usually over a two-year period, looking at one first-year and one final-year course unit. During the first year of the collaboration, the research staff discussed with the course team the rationale for the course unit and the way it was taught. They then distributed the questionnaires at the beginning and the end of the course unit, when they also interviewed groups of students about their experiences. Analyses of these baseline data allowed the research team to report back to the course team on how the students had responded to their experiences of the TLE that had been provided.

Drawing on the pedagogic literature and previous experience of working with academic staff, the reports to the course teams suggested, where appropriate, possible ways in which the TLE might be fine-tuned in line with the feedback from students. Discussions with the course team then determined whether a collaborative initiative could be agreed. If so, the following year was spent implementing the initiative and collecting data with that year group of students which could then be compared with the baseline data.

Key findings covering the project as a whole will be appearing on our web site as they emerge. Here we present a summary of the findings, and their implications, just for this subject area.

ii. Conceptual bases of the analyses

Based on the existing literature on teaching and learning in higher education, the team selected an initial set of concepts as a starting point. As the project progressed other concepts were developed to describe aspects which had proved important and had not been used previously (see Occasional Report 2).

Our main intention was to find ways of improving the engagement and attainments of students. In our study, engagement was seen in terms of the balance between so-called deep and surface approaches to learning, or the extent to which students were focusing on extracting the underlying meaning of what they were studying or were content generally to reproduce what they had been given. The LSQ questionnaire also described the extent to which students reported organised effort - organising their studying and using their time effectively, while putting concentrated effort into their work.

In looking at the course units, our starting point was to establish what staff felt were the main ways of thinking and practising (WTP) that students were being expected to develop, and how students perceived those aims.

The ETL team coined the phrase 'ways of thinking and practising' in a subject area (WTP) to describe the richness, depth and breadth of what students might learn through engagement with a given subject area in a specific context. This might include, for example, coming to terms with particular understandings, forms of discourse, values or ways of acting which are regarded as central to graduate-level mastery of a discipline or subject area… (McCune & Hounsell, 2005)

The TLEs in the course units were described from the perspectives of both staff and students. Students described their experiences in terms of a set of questionnaire scales in the ETLQ questionnaire, and also in the interviews. The scales covered clarity and coherence, choice allowed, encouraging learning, set work and feedback, staff enthusiasm and support, student support, and interest and enjoyment. The items describing teaching and set work were phrased in ways that indicated approaches likely to encourage deep approaches and well-developed ways of thinking and practising in the subject (WTPs).

The analyses in both the baseline year and the collaborative year considered the interplay between these two forms of data to reach the best possible reflection of the students' experiences of each course unit. The descriptions of both staff and students were then considered in the light of what Biggs (2003) had called constructive alignment, which stressed the importance of establishing aims focused on understanding and teaching and assessment aligned with those aims. Early analyses of the interviews with staff and students suggested that we needed a different description of the 'goodness-of-fit' between what we have called ways of thinking and practising in the subject and the whole range of teaching and learning activities provided within the curriculum (Hounsell and McCune, 2002; McCune and Hounsell, 2005). 'Alignment' implies a single 'line of sight' between a WTP and a particular teaching-learning strategy and method of assessment, whereas Biggs himself, and the student learning literature more generally, has been stressing the importance of seeing the TLE as an integrated whole – a web of interconnections in which any one element out of place can affect how students approach and carry out their learning (Eizenberg, 1988; Entwistle, 1998; Biggs, 2003). The project team decided that the term congruence conveyed this broader conception more clearly. It has thus been used to refer to the range of contributions that a well-designed TLE can make to students' engagement in learning (a deep approach), and to high quality learning processes and outcomes. The various dimensions of congruence that have emerged in our analyses are shown in Figure 1.1.

Figure 1: Differing Forms of Congruence within Teaching-Learning Environments
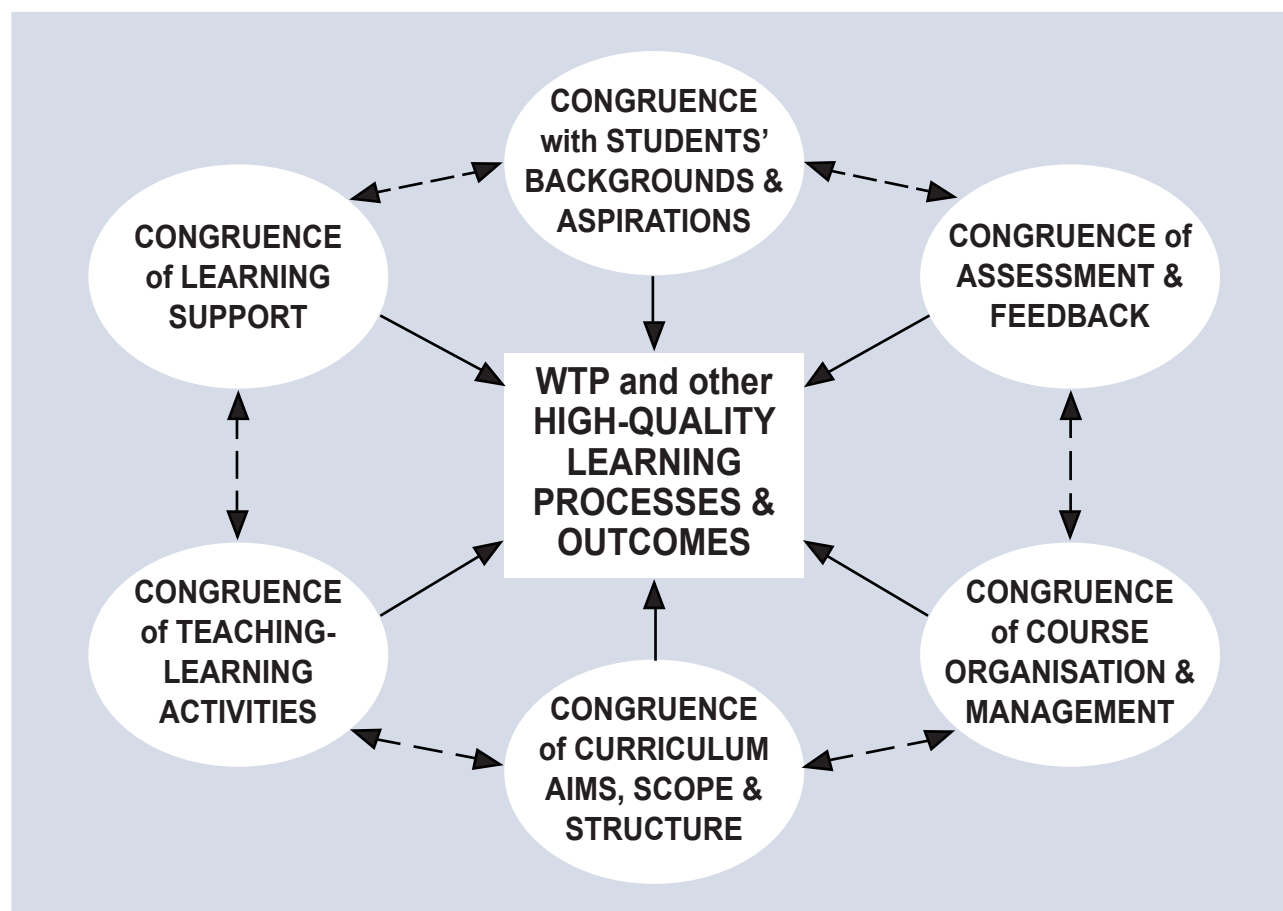
2.   LITERATURE REVIEW

The image of Economics TLE in higher education that emerges from the Economics education literature is one of a relatively traditional, uniform environment characterised by a core of common teaching-learning activities on the one hand, and by attempts to innovate and introduce new approaches on the other.

> "(E)conomics instructors frequently adopt a lecture approach, emphasizing passive learning, narrow forms of evaluation, few or no writing assignments, and a reliance on textbooks (rather than real books) and routine problems set ..."

> (Siegfried 1998: 67)

A volume edited by Becker and Watts (1998) advocates departure from a 'chalk and talk' approach which, according to its authors, is still the most widely used in US Economics departments. Its pervasiveness does not appear to have changed over time (Becker and Watts 1996, Becker and Watts 2001) and there is an indication in the literature that lecturing is also a dominant feature of Economics teaching in the UK. In the UK lectures tend to be complemented by relatively rigidly structured tutorials/seminars, during which prepared questions or worked examples are discussed (Taylor 2002a, Sloman 2002, Forsythe 2002, Volpe 2002). A biannual survey of UK Economics students highlights their dissatisfaction with not being actively engaged in lectures, passive teaching and a lack of teamwork (Economics Centre 2002, The Higher Education Academy Economics Network 2004). Uniformity is also evident in assessment.

> Students are expected to prepare answers to a series of 'shortish' conceptual questions that are subsequently discussed in tutorials in an informal way under the leadership of the tutor, with the implicit expectation that the tutor provides model answers. Midway through the module,

students submit an essay from a broad list of questions. The majority of the final mark comes from an unseen examination, usually taken at the end of the module. Students are normally asked to answer three or four questions of a fairly broad nature but closely related to the material of the lecture course and the principal textbook. Typically, answers are in essay form, each of them three or four pages in length.

(Miller 2002: 4-5)

According to the literature, a standard approach is not only taken to teaching and assessment, but also to the selection and organisation of the curriculum. Various publications (Lawson 1989, contributions to Walstad and Saunders 1998, in particular Siegfried 1998, Frank 1998, Boskin 1998, McConnell 1998, Davis and Erekson 1998) seem to suggest the existence of a widely accepted, quasi "natural" curricular progression. This general consensus and resulting curricular uniformity, which is also strongly reflected in undergraduate Economics textbooks, appears to be linked, to a certain extent, to the dominance of the neo-classical approach to Economics. Uniformity is also suggested by the fact that courses in different European countries use some of the same recommended textbooks (Gärtner 2001). The homogeneity of textbooks regarding content coverage and the lack of radically new approaches to teaching and learning is striking and has been noted by several authors (Siegfried and Walstad 1998, Walstad, Watts and Bosshardt 1998). Despite debates and disagreement within the discipline and the emergence of new research approaches and paradigms, the core material in 'principles of Economics' textbooks has not changed much and there is "a surprising degree of consensus among the textbook authors" (Walstad, Watts and Bosshardt 1998: 199).

This considerable degree of standardisation of the curriculum appears to be a distinctive feature of Economics and perhaps a relatively rare one, at least among the social sciences. It is somewhat surprising, considering that Economics as a discipline is also characterised by different schools of thought, political agendas and disagreement. Some authors have argued that diverting from the dominant (neo-classical) approach may have positive implications for the quality of student learning. Cole (1993), for instance, argues that a different quality of economic understanding could be achieved by explicitly recognising and teaching about fundamental differences between economic schools of thought. Becker (2004) advocates introducing students to cutting edge Economics which is relevant to today's real world, rather than covering outdated basic concepts which do not reflect the way in which the discipline has developed in recent years. From a broadly feminist perspective, Bartlett and Ferber criticise the "traditional definition of Economics and the narrow methods employed …to the virtual exclusion of other definitions and methods" (Bartlett and Ferber 1998: 110) as this alienates female and black students. Taylor (2002b) argues that a rigid curricular progression is dated as it does not allow for the choice and flexibility which modular degrees are intended to promote. Ormerod (2003) suggests that Economics should be taught "as more of a way of thinking about the world which can be of help in understanding a wide range of business, economic and social issues" (Ormerod 2003:73), while the prevailing approach makes it appear as a received and validated body of knowledge which students simply need to absorb. Along similar lines, Salemi (2003) advocates a focus on economic literacy which would involve concentrating on a short list of basic concepts as well as providing practice in using them, at the expense of coverage. This goes against the grain of a conception of Economics which regards acquiring a large number of building blocks as crucial for student understanding of the discipline (e.g. Guest and Vecchio 2003).

Considering the uniformity of TLEs in Economics, it is hardly surprising that the literature tends to concentrate on making the traditional teaching-learning activities more engaging, interactive and student-centred (e.g. Sloman 2002, Taylor 2002a, Saunders and Welsh 1998). One area of innovation discussed extensively in the literature is the use of information and communication technology (ICT). The journal Computers in Higher Education Economics Review (CHEER) deals exclusively with the application of ICT to Economics education. Economics-specific uses of the internet include accessing up-to-date economic information, using electronic versions of textbooks and courses, and communicating with experts (Sosin 1998). Other authors mention computer-assisted assessment (Chalmers and McAusland 2002), personal response systems (Elliott 2003) and Virtual Learning Environments (VLEs) (O'Leary and Ramsden 2002). However, ICT does not necessarily enhance the quality of student learning. UK Economics students do not think that Economics software

helps them to learn (Economics Centre 2002, Economics Centre 2004). In two recent case studies, Economics students mainly used VLEs for accessing information and materials rather than on-line communication and, despite their initial motivation, became less confident about learning and communicating on-line (O'Leary and Cai 2004). Students' perceptions of WinEcon, an Economics software package developed for introductory Economics modules by a consortium of UK universities (Hobbs and Judge 1995), were also less positive than expected (Brooksbank et al 1998).

Classroom experiments, games, simulations and case studies are another area of innovation reflected in the literature (Sutcliffe 2002, Holt and McDaniel 1998, Williams and Walker 1993, DeYoung 1993)*. Some of these teaching-learning activities are a spin-off of research in experimental Economics (Holt and McDaniel 1998, Williams and Walker 1993) which tests theory by creating laboratory situations and collecting empirical data about human behaviour within them. The main pedagogic benefits of experiments are said to lie in their potential to engage students through active participation as well as promoting an understanding of abstract economic principles as students discover them for themselves (Holt and MacDaniel 1998, Noussair and Walker 1998, Oxoby 2001, Sutcliffe 2002). Similarly, in case studies students must solve complex, real-world economic problems, make decisions or devise policies, thus learning and applying theoretical concepts and analytical methods to practical situations (Volpe 2002, Buckels 1998). Problem-based learning has been suggested in the Economics Education literature as a way of taking this approach one step further (Forsythe 2002).

There is another body of literature which reflects upon ways in which can be made accessible to non-specialists, i.e. students not majoring in Economics. The focus is on motivating these students to relate to what some authors characterise as a rather theoretical and potentially dry discipline and to engage with some basic economic principles by making them more interesting and personally relevant. This is done, for instance, through the use of topics and materials such as literary texts and sports, which are not inherently economic, but lend themselves to be exploited for an introduction of basic economic theories and principles (Siegfried and Sanderson 1998, Hartley 2001, Watts 1998, Kish-Goodling 1998, Scahill 1998, Watts and Smith 1989).

Some attention is devoted to assessment and economists are urged to consider using a larger variety of assessment formats (Miller 2002, Walstad 2001, Taylor 2002b). Walstad (2001) discusses the advantages and disadvantages of the various formats which can be used in Economics, such as essays, short answer questions, problems (verbal or numerical), multiple choice, true-false, research/term papers, short papers, problem sets and written exercises. In the US multiple-choice and true-false questions appear to be much more widely used than short answer questions, essays and term papers (Hansen 1998: 81, Walstad 2001). Walstad (1998) makes the case for multiple choice questions, provided they are properly designed. The differences between types of questions are investigated empirically in a number of studies (e.g. Chan and Kennedy 2002, Heck and Stout 2001, Krieg and Uyar 2001, O'Neill 2001, Becker and Johnston 1999, Walstad and Becker 1994). Many of these studies centre around issues of validity and reliability as well as weighing the costs and benefits of each type, but do not consider that each mode of assessment also encourages a different kind of learning. Some authors draw attention to the importance of writing for the construction of knowledge and the development of the ability to think like an economist (Greenlaw 2003, Petr 1998, Hansen 1998), particularly in light of the extensive use of multiple choice and short answer questions for assessment purposes.

One of the striking features characterising the Economics Education literature is the way in which pedagogy is conceptualised in economic categories and economic discourse is used to refer to teaching and learning. Course design, for instance, is described as an economic problem (e.g. Johnston, McDonald and Williams 2001) and there are numerous examples in the literature of economists talking of the "opportunity cost" of a pedagogic innovation (e.g. Kennedy 2001: 119, Watts 1998: 185-6). Empirical research into Economics Education conducted by economists tends to be quantitative with a focus on statistical evidence, econometric methods and some model building (e.g. Guest and Vecchio 2003, Becker and Johnston 1999, Grimes, Sanderson and Ching 1997).

*One entire issue of the Journal of Economics Education (1993) is devoted to classroom experiments.

This is by no means a comprehensive review of the Economics Education literature as some important aspects have not even been touched upon. These include, for instance, issues related to the teaching of specific concepts or models, statistics and econometrics, the impact of gender on learning Economics and economic discourse. There is also some literature which looks at Economics Education from a student learning perspective (SEL) (e.g. Meyer and Shanahan 2001, 2002, Dahlgren 1984). This SEL literature is in contrast to the 'input – output' quantitative modelling perspective that appears to characterise much of the US literature on student learning.

3. ECONOMICS SETTINGS AND SAMPLES

a. Description of Settings

In Economics six course units at three universities were investigated, three first year and three final year units. The collaborations were initiated as a result of personal contacts as well as recommendations due to the departments' track records in relation to teaching and learning. They were selected to include pre-1992 and post-1992 universities, universities in England and Scotland and departments offering different kinds of Economics programmes; however, we cannot claim that the course units and departments investigated were representative for the entire discipline. There were considerable contextual differences between them, in particular regarding the focus of the institution (teaching versus research-led), the type of Economics taught and practised by staff (mainstream versus business/applied Economics), the nature of the student intake (traditional versus non-traditional, students majoring in Economics versus other disciplines), student numbers, length of unit (one semester versus one academic year), unit content, intended learning outcomes and assessment formats. Tables 1 and 2 on page ? summarise some of the key features of each setting for easy reference.

i. Institutions

E1

E1 is a post-1992 university with a considerable intake of students from non-traditional backgrounds. The Division of Economics is located in a Business School and Economics staff teach on both specialist Economics as well as Business programmes. Degree programmes in Economics and Business Economics have recently been affected by low student recruitment. A-level economics is not a pre-requisite for studying Economics in E1.

E2

E2 is a post-1992 university whose Department of Economics belongs to a Business School. The institution has considerable expertise in flexible learning and the Economics Department has developed distance learning degrees and top-up degrees for people working in the financial services industry. Some of its degree courses are available overseas. Its home students come to a large extent from non-traditional backgrounds. The Economics degrees offered have an applied and Business Economics focus.

E3

E3 is a traditional, research-intensive university. Students tend to be white middle class students of school leaving age, with a considerable proportion recruited from the independent school sector. The Economics Department, which has only recently become part of a Business School, offers mainstream Economics programmes, catering for large numbers of students. Previous knowledge of Economics is not a requirement for Economics degrees, but all Economics majors must have one A and two Bs at A-level/Higher and an A grade at GCSE in Mathematics.

ii.   First year course units

E1F

E1F is a first year introductory microeconomics course unit with a small student intake, running over 2 semesters and geared at students who are majoring in Economics and Business Economics. One member of staff is responsible for the organisation and delivery of the entire unit. Principles of microeconomics are introduced in the first semester and then applied in the second semester. The unit includes school leavers, mature students, international students and students from ethnic minorities. It accommodates students both with and without previous knowledge of Economics. The assessment comprises an examination and a coursework element.

E2F

E2F is a large first year introductory economics course unit with an intake of well over 300 students. It runs in semester 1, is repeated in semester 2 and is available in full-time and part-time mode. It is a compulsory core module for all students in the Business School as well as a popular option on a wide range of undergraduate programmes in engineering, sociology and psychology. Although it also comprises a small proportion of Economics majors, it is mainly geared towards the needs of students not majoring in Economics. The unit introduces the main principles of micro and macroeconomics, while trying to keep the technical and diagrammatical content to a minimum. Previous knowledge of Economics is not a prerequisite. It is delivered by a team of mainly full-time lecturing staff. At the start of the collaboration, the unit was given a complete overhaul, in particular in relation to the assessment which now consists of 100% coursework, using a different format for each individual assignment.

E3F

E3F is an introductory Economics course unit which is compulsory for all students majoring in Economics. There are over 200 students on E3F and a proportion of them are on combined programmes or take E3F as an option on another degree programme. The unit covers microeconomics in semester 1 and macroeconomics in semester 2, with each set of lectures being delivered by two lecturers, who, in conjunction with a number of colleagues, also teach the tutorials. The summative assessment is by examination only and this is complemented by formative elements.

iii.   Final year course units

E1L

E1L is a compulsory final year course unit on applied macroeconomics and the third one in a sequence of macroeconomics units which students take throughout their degree programmes. It is taught by 2 members of staff, one in semester 1, with the focus on the domestic economy, and another member of staff in semester 2, who teaches the international economy. The unit's assessment strategy comprises both continuous assessment and an end-of-year examination. The continuous component includes the assessment of students' contributions to tutorial discussions by their tutor and their peers.

E2L

E2L is available for full-time students on Economics and Business Economics programmes as well as in part-time distance mode for students on Financial Services degrees who directly enter the final year of the programme as their prior qualifications are accredited. Part-time students are provided with a study pack complemented by a small number of Saturday tutorials plus individual e-mail or telephone support. Full-time students are taught in weekly lectures and tutorials. One member of staff is responsible for the unit in both study modes. Full-time as well as part-time students follow the same assessment pattern which comprises a continuous as well as an examination component.

Table 1: Overview of Settings, First-year Course Units

Unit Code	E1F	E2F	E3F
Institutional setting	Post-1992 university, diverse student intake	Post-1992 university, regional focus, diverse student intake	'Ancient' university with high research profile
Departmental setting	Focus on both mainstream and applied Economics, geared towards accommodating non-traditional students	Focus on applied/business Economics, geared towards accommodating non-Economics majors and non-traditional students	Focus on mainstream Economics, geared towards Economics majors
Unit theme	Introduction to microeconomics	Introduction to micro and macro economics	Introduction to micro and macro economics
Unit scheduling	1 academic year	1 semester, offered in semester 1 and 2, also available part-time (not included in research)	1 academic year
Role in programmes of study	Compulsory for Economics majors	Compulsory for all students in business school and on some engineering programmes, popular option on psychology and sociology programmes, Economics majors in minority	Compulsory for Economics majors, compulsory or optional for students on a variety of other programmes
A level/Higher requirements	Typical A level/Higher entry grades CCD/CDD, students with and without Economics A level/Higher	Typical A level/Higher entry grades CCC, students with and without Economics A level/Higher, large majority of students without	Typical A level/Higher entry grades ABB + A in GCSE Maths, students with and without Economics A level/Higher, majority of students with
Student enrolment	2001/2: 17 2002/3: 13	2002/3: 226 (semester 1) 153 (semester 2) 2003/04: 287 (semester 1) 128 (semester 2)	2002/3: 216 2003/4: 227
Teaching staff	1	7 (semester 1) 8 (semester 2)	2002/3: 4 2003/4: 5
Core teaching provision	Lectures 1 hr/week Tutorials 1 hr/week	Lectures 1-2 hrs/week Tutorials 1 hr/week	Lectures 2 hrs/week Tutorials 1 hr/fortnight
Assessment, incl. weightings	Continuous assessment and exam: 1 essay (30%) 1 exam (70%)	Continuous assessment only: 2002/3: 5 assignments incl. true/false, short-answer, essays (20%) 2003/4: 4 assignments (25% each)	Exam + formative test and essay: 2002/3: exam comprising essay and short-answer questions (100%) 2003/04: exam comprising multiple choice and short answer questions (100%)
Learning support and guidance	Unit and programme handbooks, close contact with unit leader due to small size of group, individual requests and inquiries	Materials for part-time students available to full-time students, from 2003/4 information and materials provided in VLE, individual requests and inquiries	Unit and programme handbooks, VLE, weekly drop-in sessions, individual requests and inquiries
Collaborative initiative	Yes	Yes	Yes

E3L

E3L is a final year optional course unit on Industrial Organisation for Economics and Business Economics majors, with lectures and tutorials delivered by one member of staff in semester 1 and another one in semester 2. The summative assessment is by examination, which includes a seen question. There is a structured programme of group-based preparation for this seen exam question, guiding students to conduct research as well as sharing and discussing their findings in a group setting.

Table 2: Overview of Settings, Final-year Course Units

Unit Code	E1L	E2L	E3L
Institutional setting	Post-1992 university, diverse student intake	Post-1992 university, regional focus, diverse student intake	'Ancient' university with high research profile
Departmental setting	Focus on both mainstream and applied Economics	Focus on applied/business Economics	Focus on mainstream Economics
Unit theme	Applied macroeconomics	Money and finance	Industrial organisation
Unit scheduling	1 academic year	Semester 1, available in full-time mode for Economics majors, in part-time distance mode for direct entry students with qualificaitons in financial services	1 academic year
Role in programmes of study	Compulsory for Economics majors	Compulsory for Business Economics majors, optional for Economic Majors, compulsory for direct entry students	Optional for Economics majors
Student enrolment	2001/2: 43 2002/3: 22	2002/3: 17 ft, 30 pt 2003/4: 17 ft, 36 pt	2002/3: 56 2003/4: 51
Teaching staff	2 (each responsible for half of unit)	1	2 (each responsible for half of unit)
Core teaching provision	Lectures 1 hr/week Tutorials 1 hr/week	For full-time students: Lectures 1 hr/week Tutorials 1 hr/week For part-time students: 4 Saturday tutorials	Lectures 1 hr/week Tutorials 1 hr/week
Assessment, incl. weightings	Continuous assessment and exam: 1 class test with short-answer questions (15%), 2 peer/tutor assessment of contribution to tutorials (10% each), 1 exam (70%)	Continuous assessment and exam: 1 essay (30%), 1 exam (70%)	Continuous assessment and exam: 1 formative coursework essay, 1 exam (100%)
Learning support and guidance	Unit handbook, individual requests and inquiries	For part-time students: study materials, individual requests and inquiries by email and telephone For full-time students: individual requests and inquiries	Unit and course handbook, individual requests and inquiries
Collaborative initiative	No	Yes	Yes

b.   Samples and data

In Economics the entire questionnaire data comprised 1,084 Learning and Studying Question-naires (LSQ) and 570 Experiences of Teaching and Learning Questionnaires (ETLQ) collected over three years in six course settings. For a number of reasons, the questionnaire return rates were variable. In all settings the return rate for the first questionnaire, the LSQ, was considerably higher than that for the second questionnaire, the ETLQ. When trying to identify approaches to studying which may have been instigated by the TLEs of the respective course units, we therefore have to be extremely cautious in making comparisons between LSQ and ETLQ data, for instance. In E1L and E2F in particular, low return rates for the ETLQ in phase 1 and phase 2 of the collaborations make it virtually impossible to evaluate the effects which the collaborative initiatives may have had on the basis of the quantitative data. Consistently high return rates for both questionnaires (well above 50%) were only achieved in E3F and E3L.

In addition to the questionnaire data, 79 semi-structured interviews were conducted with 268 students, either in groups or one-to-one, with some of the one-to-one interviews taking place on the telephone. The baseline interviews tried to capture a wide range of issues which might influ-ence the quality of student learning within a TLE. In phase 2 the interviews were more specifically geared towards capturing the impact of one or several changes to the course unit or to illuminate one particular aspect of the unit which was investigated in more detail. The student interviews were complemented by interviews with staff.

Table 3: Samples and response rates by course unit

	E1F	E1L	E2F		E2L	E3F	E3L
Phase 1 of collaboration			sem. 1	sem. 2			
No. of students	17	43	226	153	47	216	56
No. of staff	1	2	7	8	1	4	2
LSQ	12 (71%)	26 (60%)	165 (73%)	101 (66%)	36 (77%)	178 (82%)	51 (91%)
ETLQ	10 (59%)	7 (16%)	37 (16%)	38 (25%)	28 (60%)	122 (56%)	37 (66%)
LSQ & ETLQ	8 (47%)	4 (9%)	30 (13%)	26 (17%)	26 (55%)	103 (48%)	34 (61%)
Staff interviews	1	2	7	-	1	4	2
No. of staff interviewed	1	2	7	-	1	4	2
Student group interviews	1	1	8	-	6	7	4
Student 1-1 interviews	-	-	-	-	4	-	3
No. of students interviewed	8	5	51	-	7	35	11
Phase 2 of collaboration			sem. 1	sem. 2			
No. of students	13	22	287	128	53	227	51
No. of staff	1	2	7	7	1	5	2
LSQ	13 (100%)	13 (59%)	173 (60%)	57 (45%)	24 (45%)	194 (85%)	41 (80%)
ETLQ	4 (31%)	6 (27%)	41 (14%)	45 (35%)	34 (64%)	136 (60%)	35 (69%)
LSQ & ETLQ	3 (23%)	3 (14%)	28 (10%)	26 (20%)	17 (32%)	116 (51%)	29 (57%)
Staff interviews	2	1	2	-	1	2	-
No. of staff interviewed	1	1	3	-	1	2	-
Student group interviews	1	2	6	2	1	9	3
Student 1-1 interviews	9	-	-	-	7	-	5
No. of students interviewed	9	6	54	10	12	47	13

4.   KEY FINDINGS

The key findings reported in this section of the report have mainly emerged from the phase 1 baseline data (LSQ, ETKQ, student and staff interviews, documentary data) collected in each of the six course settings. However, since several of the collaborative initiatives in Economics consisted of additional research focusing on specific issues which the baseline data had highlighted, it has not always been possible nor desirable to separate the insights gained during the first and the second stage of data collection. In several instances, the two sets of data have therefore complemented each other and contributed to a more complete and rounded picture of the settings concerned. This must be borne in mind when reading the following sections of the report.

a.   The Students and their Learning

i.   Questionnaire data

Learning orientations

Figure 2 represents the aggregate data from all six course settings, displaying all first and final year students' learning orientations based on the answers of those respondents who agreed or strongly agreed with the relevant LSQ statements. When interpreting the data, however, we must be extremely cautious as there were considerable differences between the first and final year sample sizes. In addition, samples sizes and return rates for the individual course units varied considerably (see table 3), so that the findings are skewed towards those units with larger student numbers and higher return rates.

Figure 2: Learning orientations
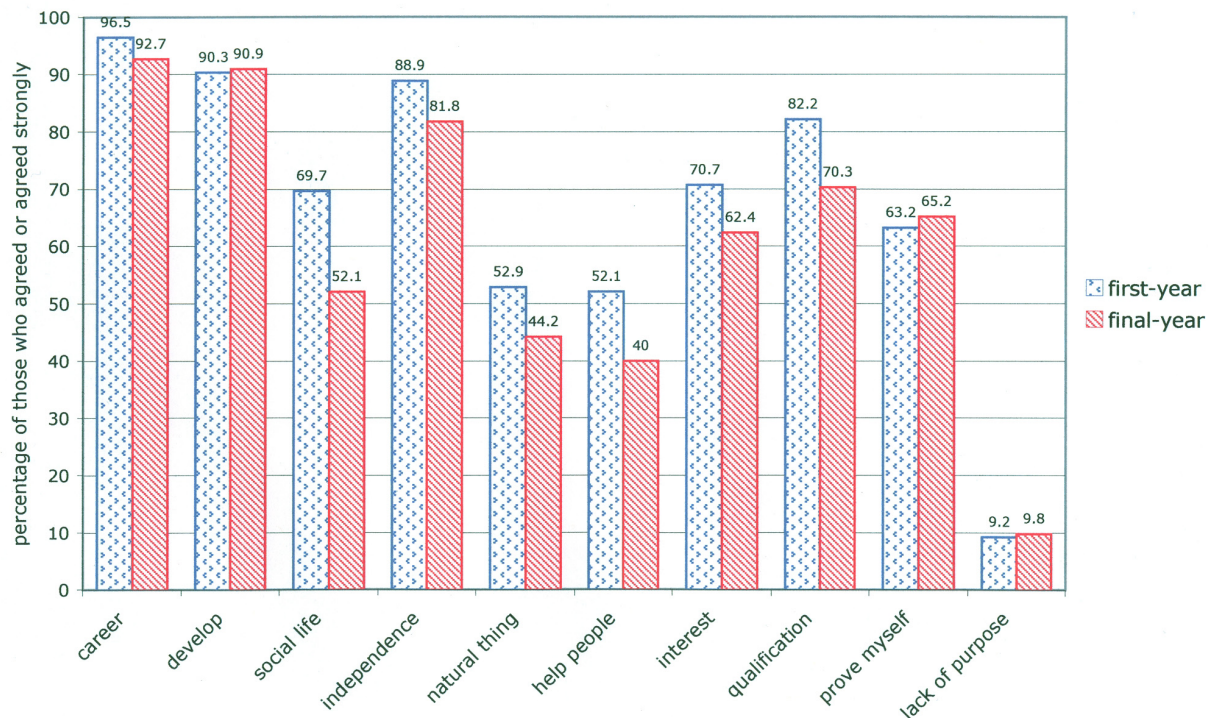
The bar charts show that overall, first and final year students' learning orientations showed a relatively similar pattern. There were only two major noticeable differences between ratings. First year students were more orientated towards opportunities for an active social life and/or sport than final year students and they were also more oriented towards obtaining a qualification in order to get a good job.

Reasons for taking the course unit

Figure 3 displays all first and final year students' reasons for taking their respective course units based on the answers of those respondents who agreed or strongly agreed with the relevant LSQ statements. Like figure 2, figure 3 also represents the aggregate data from all six course settings.

Figure 3: Reasons for taking course unit
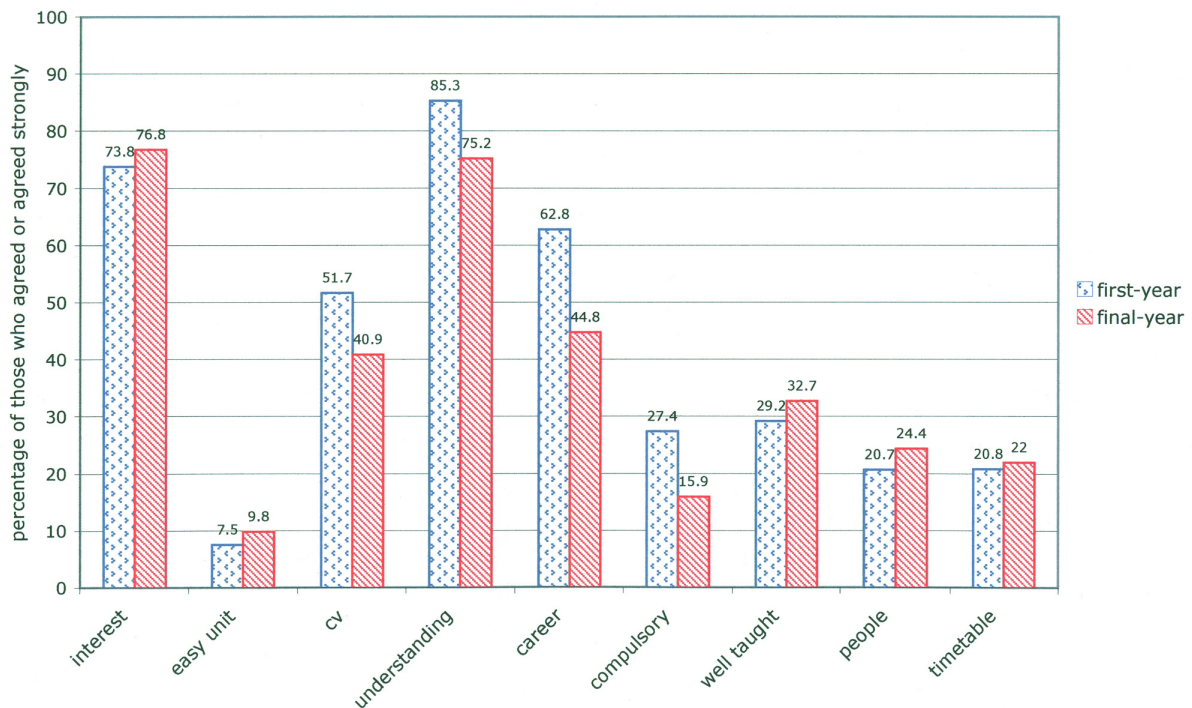
Once again, there were considerable similarities in the ratings of first and final year students. Asfar as differences were concerned, reasons related to career and cv were less important to final year students than to first year students. In addition, more first than final year students reported that they took their respective units because it was compulsory. This is likely to reflect the fact that two of the final year course units investigated were optional for a considerable proportion of the students, while most first year students had no choice in that matter.

Approaches

Figure 4 depicts the way in which first and final year students in all six course units rated their approaches to learning and studying on the LSQ.

Table 4: Approaches to learning and studying (LSQ): mean and standard deviation

	First-year			Final-year		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Deep approach	3.69	.60	882	3.73	.63	165
Surface approach	2.68	.80	886	2.51	.82	165
Organised effort	3.52	.73	887	3.52	.81	165

Figure 4: Approaches to learning and studying (LSQ)
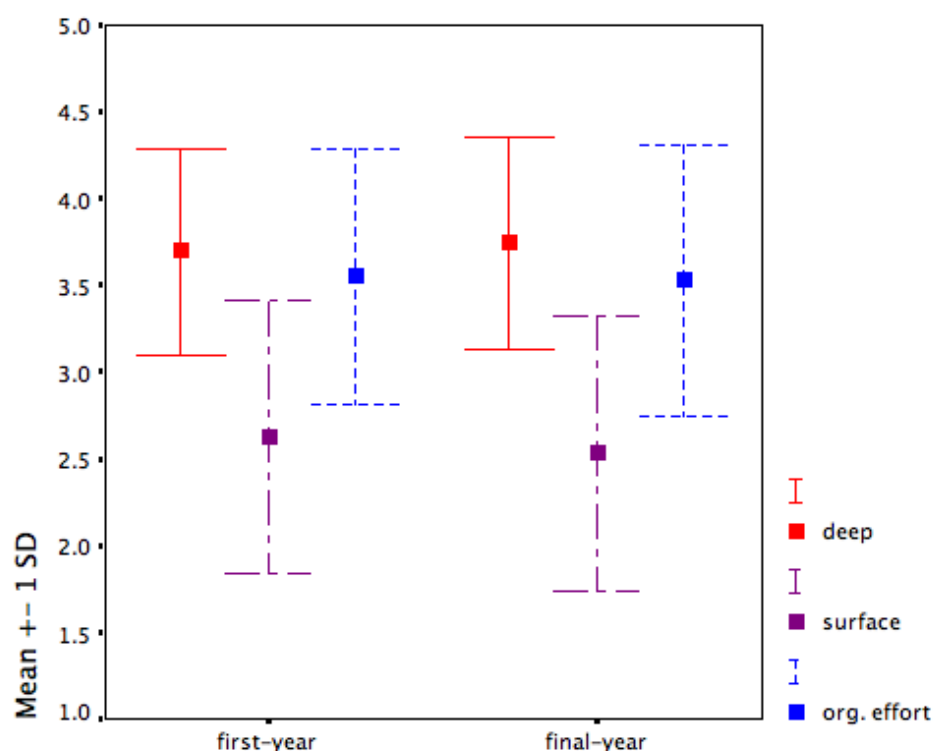
Figure 4 and table 4 illustrate that there were virtually no differences between first and final year students' reported use of the deep and surface approaches to learning and in the extent to which they organised their studying, used their time effectively and put concentrated effort into their work (organised effort). One might speculate that one possible reason behind such stability in approaches could be the relatively standard format of the TLEs in Economics. Due to the experience of relative sameness, students were perhaps not stimulated enough to change their approaches to studying over the course of their degree programmes.

ii.   Interview data

Student diversity in Economics course units

The heterogeneity of students' backgrounds/needs and the way in which this posed a challenge for the provision of coherent TLEs appropriate for all students accommodated within a single course unit, was brought up in most staff interviews. Heterogeneity came in many guises, particularly in the first year. The following paragraphs will briefly highlight those aspects which were described by staff and students as having a particular impact on learning and teaching in the course units investigated. A more detailed discussion can be found in Reimann (2005).

Different levels of previous knowledge and majoring in different disciplines and programmes of study

One aspect which was highlighted both by staff and students as particularly important for student learning on first year modules was previous knowledge of Economics. To a lesser extent differences in previous knowledge of Mathematics also featured in the interviews.

> L: The first questions to ask is what are these students coming in with in terms of economic knowledge and what they need to go out with. As an introductory core module we have a very wide range of ability in fact, from those people who've done no Economics and no Maths beyond the age of (…) 15, 16, whereas others have come in with a fairly high degree of specialisation

in Economics and Maths at A-level. And between those two extremes there is a whole range of different combinations and backgrounds, including some people who are not doing Economics as a main degree at all (…). So there is a very wide ability range, a wide range of motivations and in a lecture hall of 200+, (…) you've got to offer something for everyone.

(E3F-sta1)

All first year modules comprised differing proportions of students with and without previous knowledge of Economics (such as A-level, Scottish Higher, HND). As a consequence, one important aim of both E1F and E3F was to level out the differences between these students before the second year of the programme. As was shown in Reimann (2004), students without previous knowledge were more likely to struggle to understand and had much more work to do in order to keep up, while a background in Economics made the courses much easier and decreased the workload considerably. Students with previous knowledge of Economics on first year course units often perceived them as predominantly providing revision, particularly in microeconomics. This perception might well have negative implications for student learning. If everything appears familiar, it is unlikely that the environment will provide sufficient stimuli for students to review and revise their existing knowledge. Existing conceptions and potential misconceptions might therefore prevail and fossilise rather than being replaced by more sophisticated conceptualisations. It must be noted, however, that some first year students also identified the ways in which degree level Economics differed from what they had learnt at school, such as the increased level of uncertainty, the importance of different schools of thoughts and the fact that the reasoning behind things was explored and explained, rather than facts being regurgitated. Economics at school, on the other hand, was said to be slower paced and to include more real-life application as well as less theory and mathematics.

Getting everybody up to the same standard was particularly important for those students who were going to continue their studies of the subject, especially students majoring in economics. E2F and E3F comprised both economics majors and students majoring in other disciplines who took economics as a compulsory or elective module. Since E2F was a core module for students across the entire faculty, economics majors were actually in the minority, while in E3F the majority of students were economics majors.

Different entry levels and modes of study

Economics is a subject to which recruitment has decreased over the past few years and this was one reason for E2L being offered in two very distinct incarnations. In the standard full-time mode economics majors took E2L during the final year of their programme of study. In addition, people working in financial services and insurance were admitted directly to the final year of the programme since their qualifications were recognised as prerequisites for final year study. For these mature direct entry students, E2L was available in part-time distance mode. Specific challenges arose from all students having to achieve the same learning outcomes. While the full-time students had had ample opportunity to become acquainted with economic theory in the preceding years of the course, the direct entry students reported a lack of theoretical understanding which made it more difficult for them to apply theory to real-world problems, as required on E2L.

> S: I would be able to get better marks if I could understand the theory behind Economics, if I could apply the theory to real life. I think I'd be doing better in the course if I had a fundamental knowledge of Economics.

(E2L-stu3)

In addition, the direct entry students were less able to cope with the requirements of economic essay writing as they had not been inducted into the ways of thinking and practising in Economics and their application to academic writing over the same length of time as the full-time students.

Different life experience and professional backgrounds

Being a part-time student was also said to have advantages as the students on E2L brought with them their professional backgrounds and experiences which helped them to engage with and

understand some of the content covered on the module. The advantage which mature students have against school leavers when studying Economics was also highlighted within the context of other modules:

> L: Economics [is] best done by mature people or at least older people, because you can't see how things fit together quite the same if you haven't had that. (…) (…) Mature students that have come in through our access scheme (…) have always helped bring a more realistic approach generally to the undergraduate student body.
>
> (E1F-sta1)

Different cultural and linguistic backgrounds

Modules at E1 comprised a considerable proportion of international students. These students pointed out the ways in which TLEs which were geared towards UK students could be problematic for non-UK students. Their lack of familiarity with the political and economic culture made engagement with the examples used more difficult.

> S: I think the problem I had, because I am foreign (…), for example I don't know what happened to Britain ten years ago.
>
> (…)
>
> S: Or for the Black Friday, for the assessments. And one of the lecturers used to give this kind of examples, so I couldn't understand.
>
> (E1L-stu1)

In addition, being non-native speakers of English was perceived by these students as affecting their performance in, for instance, the detailed comprehension of lectures and economic textbooks. The specific difficulties of the language used in Economics writing have been described by applied linguists (contributions to Dudley-Evans and Henderson 1990). Research conducted by Meyer and Shannahan (2001) found that having English as a second language had a negative effect on learning outcomes within first year Economics in Australia.

Different levels of academic ability and motivation

Finally, several staff interviewees from E1 and E2 commented on the challenges of teaching what was labelled as 'weak' or 'academically less able students' and who, in some instances, were also seen to be less motivated. The perceived lack of ability was described as having implications for the quality of economic understanding achieved by these students.

> L: On the level 3, what we found is that the weaker students have difficulty applying economic analysis. (…) The students are less happy grappling with theoretical abstract models than they perhaps were in the past.
>
> (…)
>
> L: (…) Obviously if they haven't got a firm grasp of the model, then it becomes difficult when they are asked to apply it.
>
> (E1L-sta2)

b   The Discipline: Ways of Thinking and Practising (WTP) in Economics

As already mentioned in the introduction, the ETL researchers developed a new construct, ways of thinking and practising (WTP). This tries to capture "the richness, depth and breadth of what students can learn through engagement with a given discipline or subject area in a specific context, and particularly in the later, honours years of undergraduate study" (ETL Biosciences Subject Report). This section will sketch the core issues and components of WTP in Economics, as derived from the interviews with staff from all six settings.

i. WTP in staff interviews

The theory-real world continuum

Economists use theoretical abstractions to think about real world problems and an appreciation of the relationship between theory and the real world lie at the heart of WTP in Economics. We found that most Economics course units, programmes of study, departments and individual economists positioned themselves on what we called the 'theory-real world continuum'.

Figure 5: The theory-real world continuum
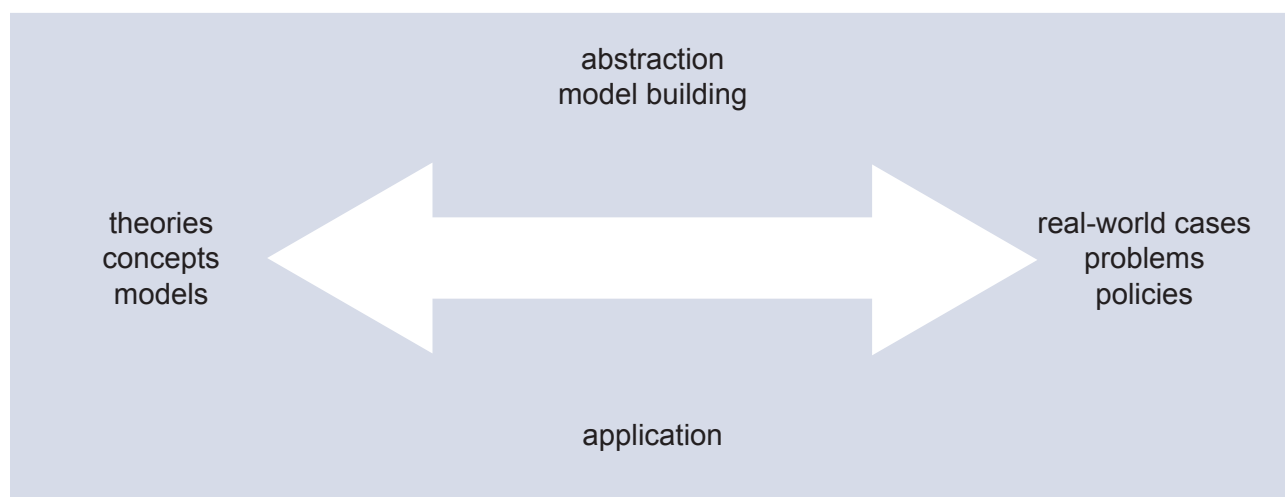
Both poles are integral aspects of Economics and one cannot exist without the other, but either side of the continuum was stressed differently during our investigations. The prestige lies clearly at the theoretical side of the continuum.

> L: Again this is a real world thing. Because, you see, economics is inevitably, it's abstract. Like a good geologist, you go out and look at rocks and engineers bash metal or whatever, but what's inflation? You can't get hold of that. (…) Everything is abstract. So you've got to keep bringing them back to the real world, these things really happen.
>
> (E3F-sta1)

> L: My view is Economics is not relevant unless you can teach students to understand the real world. Abstract models are fine in their field but to a general degree unless you're training pure economists that is not what you should be doing. It fits here in E2 where we're talking about applied research and a vocational type university that is preparing people for the world of work.
>
> (E2L-sta1)

Schools of thought

Several economists interviewed emphasised the way in which different schools of thought had influenced the development of the discipline, particularly in macroeconomics.

> L: The other thing that is very important is that economists do not agree and this is an area that macroeconomics where disagreement has led to the development of two quite different schools of economic thought, so they have to understand the differences between these major schools of thought.
> (…)
> L: (…) We think that it's very important that they do understand that economists have different ideas. The way that we usually introduce this to students at level 1 is to take an historical approach. (…) If we do it in that way, it gives them an idea of how the ideas have developed and at the same time and how the positions of the different groups have separated.
>
> (E2F-sta5)

Although there are fundamental ideological differences between, for instance, neo-classical, Keynsian or Marxist approaches, it is mainstream neo-classical Economics which dominates the discipline and seems to be responsible for the noticeable standardisation of the curriculum taught to undergraduate students. Despite highlighting the importance of schools of thought and contestation, many economists seemed to agree that an understanding of the main principles as defined by neo-classical Economics is necessary for students before moving on to alternative approaches and more critical perspectives.

Economic thinking

In the interviews 'economic thinking' was characterised as logic and analytical, consisting of deductive and inductive reasoning, abstraction and problem solving, which once again points to the crucial link between theory and real world. Students also needed to be critical, reflective and use evidence in order to prove or disprove points.

> L: You have to learn how the subject ticks, and the concept of a hypothetical model with constraint assumptions, the concept of equilibrating systems – I mean, most of the first year course is about free markets, supply and demand, perfect competition – so it's about the idea of an idealised, or a perfect market. There isn't one as such, but you have to explain to them that it's an idealised concept, which then allows you to evaluate other markets.
>
> (…)
>
> L: (…) The point I'm making is, once you get the idea of how the subject ticks, and setting up these deductive models with the ceteris paribus assumption and all the rest of it, that they begin to see that it's the same as all science – the idea of using assumptions to control the environment and influence the way the model works.
>
> (E2F-sta6)

Although most of Economics tends to be described as scientific, 'hard' and technical, some economists take a more social scientific perspective, emphasising the 'soft' and discursive aspects of the discipline.

Mathematics and econometrics

Econometrics is the application of mathematics and statistics to the analysis of economic data. In the context of the courses investigated, mathematics/econometrics was mainly taught and used as a tool.

> L We are trying to do different things with econometrics (…). We are trying to use it as a tool to look at data rather than in years gone past perhaps there was more emphasis on the theory of econometrics, statistics and so on. So there is more of an emphasis on the application rather than the theoretical construction.
>
> (…)
>
> L   Again we do refer them to econometric results, but again thinking back ten years ago, we would ask them to read articles which had econometric results in and they had to understand what was going on. There is much less of that goes on now. (…) So we are getting this more on the interpretation of econometrics now rather than actually doing the mathematics of it.
>
> (E1L-sta2)

The focus on using econometrics as a tool may purely be due to the fact that most of the course units investigated happened to focus on applied Economics. The role and importance of econometrics and students' technical skills seemed to depend on the nature of the Economics programmes of study and the course units, and particularly on the students concerned. An exploratory staff group interview conducted at E3 suggested that cutting edge research in Economics is currently very 'hard' and technical, with the most prestigious studies reporting econometric analyses of high sophistication and complexity. This, however, also has implications for pedagogy.

> L1 I think the discipline has become more technical …
>
> L3 Yeah

L1 …and therefore inevitably the degrees, the economic degrees have become more technical.

L5 Uhum (in agreement)

L3 Yes, I think that's right.(…). I am a macroeconomist so, macroeconomics tends to be about building models that can capture aspects of the data. That's a theoretical exercise that you then have to quantify your model and parameterise it and take it to the computer and simulate it and see whether it matches the data. That's a very technical exercise and it's a very sort of precise exercise, but it's … Now 15 or 20 years ago that procedure was regarded as abstract and for (?). Now most people working in macro do that, that's what they do.

(E3-staFG)

The next quotation illustrates the dilemma between what is perceived as the WTP of the discipline and the need to design TLEs which are constructively aligned to the students.

L5 What we do here in E3 for a joint honours candidate is permit them not to do any data analysis after year 1. And that is a bit of an issue I think because if we were thinking about whether that's a good thing or a bad thing or whether this is common practice across institutions, I don't feel well enough informed to actually say that. But I think it is potentially a weakness of our own joint degree, the maths side.

L1 The ones who may come to do economics and find the quantitative side difficult, we move to a joint degree which inevitably will focus on some of the less quantitative aspects of the discipline. But the discipline itself has, the single economics, has become much more quantitative.

(E3-staFG)

Curriculum as building blocks

The view of the Economics curriculum expressed in staff interviews was that of a collection of "building blocks" which students needed to grasp first as a foundation for further study. The following building blocks have been identified:

Concepts

Most of the course units, particularly first year ones, required students to grasp a considerable number of economic concepts which were taught by introducing students to definitions, formulae and equations, graphical representations and real-world applications. There was considerable similarity between the concepts taught in all three introductory units. Although inductive, 'problem first' approaches to teaching these concepts are advocated in the literature and may be possible in principle, a deductive, 'theory first' approach seemed to prevail.

L: The way I approached it was in three stages, the first in which we talked about the logic, the internal and economic philosophy of looking at elasticity. Then I tried to introduce it diagrammatically by looking at the shape of the demand curve, then I tried to do it with algebra. So it was hopefully reinforcing at each stage the concepts of elasticity and the different types of elasticity.

(E1F-sta2)

L: Then in the tutorials we would go through pricing strategies and see how elasticities are appliedto, say on and-off peak rail travel, pricing of goods in motorway, railway service stations being more highly priced than the same item outside of a monopoly position.

(…)

L: (…) What I then do, I deposit this idea of elasticity within a wider assessment. (…) And they'll work out elasticities for quite detailed product groups: deodorants, bottled beer, sports footwear, (…) then map out supply changes, demand changes, income and substitution effects of price changes which link into elasticities. Through that a very practical and a very detailed case study on using that. And then we'll generalise it out to see if there are any generalisable issues that can be concluded from that analysis.

(E1F-sta1)

Models

Models are central to economic thinking, particularly in macroeconomics.

> L: But I think in terms of the way in which people think, I think we do have to instil in students a kind of acceptance of modelling which is quite fundamental to the way in which we approach most of our analysis. We need to formulate assumptions, we need to be not dismissive of that, accepting of that and then be able to use our framework to address some real world issues. And I think it's actually quite a difficult challenge to actually … : Let's take this very abstract form because it's going to help us talk about this real world phenomenon. (laughs) I think it's something that we do have to develop over quite an extended period of time.
>
> (E3-staFG)

Students need to understand individual models as well as develop an ability to deal with models in general. This involves understanding that models are hypothetical and deductive, being able to work through a model by breaking it up into its components, understanding the impact of changes within a model, using this knowledge to make predictions and applying the model to real world problems.

Theories

Theories are broader than concepts or models, but individual concepts and models are part and parcel of certain theories.

> L: I think that the main learning outcome is to cement the foundations of microeconomic theory, consumer theory, production theory and welfare.
>
> (…)
>
> Within welfare economics it's, it would be income distribution and how that impacts on economic growth, but then maybe have to bring in from macroeconomics. In consumer theory, it's the way in which scarce resources are allocated by consumers, and that would obviously be a demand-side effect. And with production theory, how do firms use scarce resources and feed those into the markets, and that would be a supply side.
>
> I So you've got some theories and then within the theories you have got some key … –
>
> L - key elements -
>
> I concepts or -
>
> L - scarcity, opportunity cost, and decision-making.
>
> (E1F-sta1)

Staff wanted students to appreciate that theories never fully encompass empirical data. In some course units recognising the difference between specific types of theories (e.g. static and dynamic) and between the resulting approaches to analysis was also important. Students also need to understand that particular theories are likely to have been developed and influenced by various schools of thought.

Graphs

Graphs and diagrams are core representations of economic ideas and can be described as a particularly efficient way of communicating knowledge in the discipline.

> S: Once you can draw the line, then it's quite easy to talk about the line –
>
> S: Talk about it, because it all comes through –
>
> (…)
>
> S: Because the graph shows exactly what's happening, so if you just look at the graph, you can read a graph, kind of thing, you can describe what's happening.
>
> (…)
>
> S: I think the graph is the shortest way to understand this theory. So it probably is the best.
>
> (E3F-stuE)

I: Is there anything specific where (…) you think, yeah, she's got it?

L: It would be their explanation of a diagram for example, it's always a key favourite of mine. If they introduce a diagram a) is it labelled and is the content correct? (…) And then their analysis of their understanding of that. (…) Do they understand what a downward sloping demand curve (is) or an upward sloping supply curve? I'd look to see that they've got the diagram right and then have they understood it or tried to analyse it. That's often the key indicator.

<div align="right">(E1F-sta3)</div>

Students need to understand graphical representation, to construct and deconstruct graphs, to illustrate changes by shifting curves and to use them in support of arguments. However, the role and use of graphs in teaching was also strongly contested. In E3F, for instance, the students were socialised into regarding diagrams as core to economic thinking and representation, with the curriculum and examination being strongly focused on them. In E2F, on the other hand, the diagrammatical content was reduced to an absolute minimum in order not to create stumbling blocks and distract beginning students from the economic ideas and principles which graphs represent (see section 5.c. for a more detailed discussion).

Empirical evidence

Empirical evidence was particular important in the final year units E1L and E3L, where the focus was on using and interpreting evidence, but without students having to conduct complex analyses. The students also needed to understand the relationship between theory and data.

L: In economics you always have that situation (that) empirical work tends to - it doesn't leave the theory behind, it never does in economics – but the theory never encompasses sufficiently for empirical work. What happens when you're confronted with the data, theory is never tight even. Theory is never sufficient to specify an actual model for estimation. The data will never conform fully to it – there's absolutely no question about that. And so therefore there's always an element of ex-post-hoc-rationalisation and or – as you're actually doing the work – having to account for things that the theory hasn't accounted for. But that's in the nature of economics.

<div align="right">(E3L-sta1)</div>

The "wider picture"

Being aware of the "wider picture" as part of WTP refers to the relationship between individual concepts within the economy as a whole and to potentially going beyond the narrow confines of the subject in order to gain an awareness of the world we live in.

L: The relationship between all the economic variables and the economy (…).

(…)

L: (…) The macro economic variables, how they all relate together. I think that's the hardest thing for the students is the relationship between all the different variables like unemployment, inflation, economic growth, balance payments and the instruments that we have available to deal with problems and I think they find that extremely difficult.

(…)

L: So it's looking at the concepts and how they relate together and how they affect economic behaviour and that is so difficult for students to grasp and yet we're dealing with it all of the time in the real world.

<div align="right">(E2F-sta3)</div>

Troublesome knowledge and threshold concepts in Economics

A particularly generative line of enquiry to emerge from our discussions with economists was the notion of Threshold Concepts and its relation to Perkins' earlier work on Troublesome Knowledge (Meyer and Land 2003). Within Economics as a discipline there seem to be particular concepts that can be considered as akin to a portal, opening up new and previously inaccessible ways of thinking about particular aspects of the subject. A threshold concept represents a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress.

L: Yes, there are a couple [of threshold concepts on E1F], fundamental. I think one of them is opportunity cost and the other scarcity. That time and resources have alternative uses and that they are limited respectively. But I think the key concept that I always look towards to check diagnostically to see if students are understanding, is this notion of elasticity. Price elasticity of demand is a notion which we borrowed from physics as a lot of the early economists were physicists. That, how responsive to price changes is demand and how responsive to price changes is supply. And I think they can come to grips with scarcity and opportunity cost and others in (a) fairly abstract way, but I think if they fundamentally understand elasticity, they are well under way to, they have passed the threshold in that sense.

(E1F-sta1)

As a consequence of comprehending a threshold concept there may thus be a transformed internal view of subject matter which enables the student to move on. However, such transformation, though necessary for progress within the subject, may prove troublesome to certain learners.

I Is there anything of those things you described that is particularly difficult, that students struggle with?

L I think elasticity, they can't see where it fits in. It's just another in a long line of theories, whereas actually it's pivotal to understanding microeconomics from a mainstream perspective. And even from a non-mainstream perspective you could argue it's a point of departure from criticism of the neo-classical orthodoxy.

(E1F-sta1)

L: If they can understand elasticity, they won't come across anything at level 1 and even at level 2 that would be more difficult [than elasticity]?

I: Right, so it's one of the concepts in microeconomics, (it) is one of the most difficult ones.

L: It is, yes. It's very difficult to teach and it's very difficult to learn.

I: What is it that is so difficult about it?

L: .. I think it is because it very often appears as a chapter or part of a chapter, but then doesn't seem to be linked to others, other elements, but it is, it's crucial because (…) without elasticity you only look at levels of demand or levels of supply, whereas what you really need to be looking at is changes in supply and changes in demand. So if you understand the elasticity of a supply and demand curve, you can understand the changes and the elasticity of any curve. And curves are essential to the way in which economic ideas are represented.

I: So it almost has a transformative quality to it, if you understand THIS, it will be easier for you to access other things as well.

L: Yes.

(E1F-sta2)

There are a variety of possible reasons for the troublesomeness of a threshold concept, not the least of which is that such transformation entails a letting go of earlier, comfortable positions and encountering less familiar and sometimes disconcerting new territory. This may entail a shift in the learner's identity. The result may be that the student remains stuck in an 'in-between' state in which they oscillate between earlier, less sophisticated understandings, and the fuller appreciation of a concept that their tutors require from them. One outcome is that students may present a partial, limited or superficial understanding of the concept to be learned which we have characterised as a form of 'mimicry'. A more serious outcome is that students become frustrated, lose confidence and give up a particular module. This line of enquiry into ways of supporting students through such conceptual transformation has led to substantial outputs and further research activity which are discussed in the conclusion to this report. Reimann and Jackson (in press) report a case study of E1F, in which students' developing understanding of two threshold concepts, 'opportunity cost' and 'elasticity', were explored.

ii.   WTP in student interviews

The student interviews reflected many of the issues also highlighted by staff and already discussed above. On the whole the TLEs investigated tended to contribute very clearly to students'

understanding of what Economics as a discipline was about. This seemed to be mostly regarded as a way of thinking, but some aspects of practising were also referred to by the students. The student interviewees described Economics as a conceptual, theoretical and mathematical discipline. Just as the academics who were interviewed, the students talked about models, schools of thought and the link between economic theory and the real world. Overall, final year students tended to be somewhat more aware of the contested nature of knowledge and the necessity to back up arguments and theories with evidence, although this was not always as evident in the student interviews as staff may have hoped.

> S: I think it's a model [=module?] full of debate. For example for every topic we have, this part (…) says this and we have the other part that says a different thing.
>
> (…)
>
> S: And you have got to sort of weigh them up against each other. It's basically you come to a conclusion about what YOU think of it at the end of the day which is nice because it is your opinion. Say if you are given a question it tends to be your opinion based on the evidence (..).
>
> I: Is that one of the core things you have learnt from that module? This debate thing?
>
> S: Yeah, it helped us a lot. We weighed different situations and find a middle road.
>
> S: You must be very critical in that particular course because there are so many different points of view that you must choose your own, that one that you think is the right, but that makes macro so interesting because you can never know what is wrong, what is right, you must really study about it and you must make your own decision.
>
> (E1L-stu1)

Economics as a conceptual discipline

The fact that Economics was perceived as a very conceptual discipline came through very strongly in a large number of student interviews. In some of the TLEs investigated, the students were therefore confronted with a very full curriculum which dealt with a large number of concepts and models and was delivered in a fast pace (also see section 5. c. below). As a consequence, some of them found it difficult to make connections and to distinguish between what was more or less important.

> I: What are the most important things you have learnt on the micro module so far (…)?
>
> S: How do you mean? I don't know what you mean.
>
> I: (…) If you go through the module and you think: what have I actually learnt so far? What are the kinds of things you have learnt?
>
> S: Supply and demand I think (…)
>
> (…)
>
> S: Monopoly we have just been doing, God, I can't remember anything else (laughs). Oligopoly.
>
> (…)
>
> S: (…) What else? Oh, start again, consumer choice, decisions.
>
> (…)
>
> S: I can remember supply and demand, I can remember monopoly because we have just done that. And I have been reading the oli, whatever it is, myself.
>
> I: If there are any particular economic CONCEPTS that are important to that module or have been so far, would that be the ones you have just mentioned?
>
> S: Yeah, I would think so.
>
> I: I'd like to focus on two concepts and one of them is .. elasticity.
>
> S: Oh yeah, we have done that (laughs), I remember now.
>
> (E1F-stuD)

Students frequently saw the function of their introductory courses as learning about basic concepts and theories in order to build the necessary foundations for further study, thus embracing the building block view of the curriculum held by staff and described above.

S: I think you do need to learn the theory first before you can understand it at an applied level, there is various stages you have to go through first.

(E1L-stu2)

Economic literacy

Economics-specific ways of reasoning, writing and representing knowledge and understanding featured somewhat differently and more explicitly in the student interviews than in the interviews with staff. Although staff also saw these as integral parts of WTP in Economics, the student interviews often pointed to their specific importance for Economics and to the particular difficulties which could arise from not (yet) being familiar with them. First year students in particular spoke about the discipline-specific nature of economic thinking and reasoning and the way in which this is reflected in economic writing practices. Many students highlighted the importance of graphs for Economics. See Reimann and Xu 2005 for a case study of E3F, which discusses students' perceptions of graphs as a core component of WTP in Economics, of the course unit under investigation, and of short answer questions as used in the end-of-module examination.

S: I think it [the module]'s quite logical. It teaches you how to think. (…) There's an awful lot of diagrams involved so it is all quite, I don't know, quite conceptual,. You have to be able to understand and interpret diagrams, so I think that's quite an important skill. Most of the lectures, I just had notes of virtually diagram after diagram with very little writing in them. I think even that was brought forward in the exam as well, sort of a focus for the longer questions with diagrams important, very important.

(E3F-stuI)

S: (…) The interpretation of the graphs (…). I do Politics as well. With the way of thinking there, basically nothing's true, you can argue either way and that's how you do an essay. But Economics, it is kind of a theory, kind of assert something they believe that happens. So that's a difference. You don't argue for and argue against and then sum up, but never actually conclude something. You do make definitive conclusions, and there is a different way of thinking. (…) You need to know how to read the diagrams, what they mean, to get the conclusion.

(E3F-stuH)

Although Economics-specific writing skills may be a crucial aspect of WTP as perceived by the students, the staff interviews did not contain much detail about the distinguishing features of economic writing nor evidence of economic literacy being a prime concern for teaching. When trying to design effective and constructively aligned TLEs in Economics, it might therefore be important for staff to consider explicitly possible ways in which students can learn to use these disciplinary genres and forms of discourse appropriately.

Microeconomics versus macroeconomics

Another aspect which had not received much attention in the staff interviews, but was mentioned by the first year students was the perceived difference between micro and macroeconomics. Many students related to macro and micro in different ways and their comments suggested that macro and microeconomics were taught quite differently.

S: There is a lot more theory involved in micro than in macro as well.

(…)

S: Less general, there is different, lot more different theories because you are looking at more different aspects of the economy.

S: More complex.

(E1F-stu1)

S: I preferred the subject [macro]. I am doing Politics and so it is a bit more political this term, and related to that, rather than last term when it was science-based, and maths-based.

S: I feel the same, it is a lot more sort of real life, a bit more like politics, whereas micro I just thought it was just one graph after another.

> S: I think that is probably why I was happy with micro. With doing maths, chemistry and physics, I was quite happy understanding all of those things.
>
> (E3F-stu1)

Although the interviews did not focus specifically on students' perceptions of the differences between macro and microeconomics, it might be important to consider the tentative insights gained when designing TLEs. There was some indication in the interviews that the way in which the link between the theory and the real world features in the TLE may be responsible for the different levels of student engagement with either micro or macroeconomics.

Economists versus students of Economics

There appeared to be a disjunction between what was regarded as the skills of full-blown economists in contrast to what was seen to be necessary for undergraduate students. For instance, technical 'hard' Economics has been described above as being prestigious. As we have already seen, however, the economists we talked to did not regard a technical approach as appropriate for their students. Along similar lines, introductory courses and textbooks tend to present basic economic concepts and the foundations of the discipline in a way which suggests that these are uncontested, while undergraduate students may only find out later that this is not necessarily the case.

When final year students were asked whether they were thinking, writing and speaking like economists, many interviewees conveyed the sense that, despite feeling distinctly different from novice students of Economics and students of other disciplines, they did not conceive of themselves as full-blown economists. While they had acquired some of the WTP of the discipline and were able, for instance, to be analytical, understand and apply economic concepts and write economic essays, in the eyes of the students economists did much more than that, e.g. writing research papers and doing econometric data analysis.

> S: I think there is a difference between what we need to write in our 1,500 or 2,000 word essays and what economists need to write for the economic journal way. There is a big difference.
>
> I: What is the difference?
>
> S: The level of economics, the language.
>
> I: You've learned to write like advanced economic students, but you are not writing like real economists? Is that what you are saying?
>
> S: There is a formal way of writing an economics essay. Most of them are 'critically analyse this', or 'what is the extent' or whatever. You can churn this out.
>
> S: When we started in 1st year it was a major task, but now you just do it. It needs reading, but the plan is almost there, before you have even started.
>
> I: There's still a gap between that kind of gap and the reading you do of journal articles?
>
> S: I think the topics we write on, the knowledge we have to have is not (..), we have to know the theory is, what the criticism is. People who actually write formally throw in theories, new models etc. We don't have the ability to do that yet. We write about what everybody is writing about. We don't have the chance to write anything new.
>
> (E3L-stu1)

> S: If you don't mind me saying this, we're just finishing the bachelor degree, we're not doing an PhD, it's still very amateurish. I feel I can think like them, but not as advanced.
>
> (E2L-stu1)

c.   Teaching-learning Environments in Economics

The following paragraphs will describe the six TLEs investigated as they were perceived according to baseline ETLQ and student interview data. The discussion will focus on those features which have implications for our understanding of the nature of TLEs in Economics more generally and were encountered in more than one setting. Students' responses to each individual course unit and to the collaborative initiatives will be considered late-on in this report.

i.   Questionnaire data

Figure 7 shows all first and final year students' aggregated ratings of their respective TLEs in Economics, using baseline ETLQ data. For ease of comparison, the scores of first year students are displayed next to those of final year students.

Figure 7: Perceptions of teaching-learning environments – first and final years
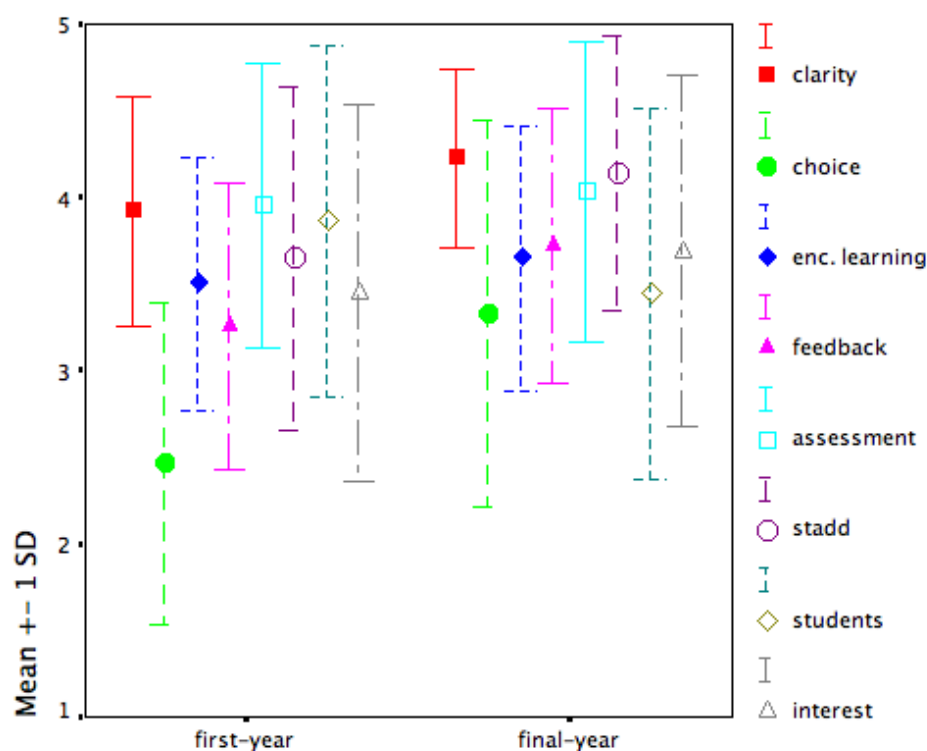
Table 5: Perceptions of teaching-learning environments: mean and standard deviation

	First-year			Final-year		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	3.92	.70	433	4.25	.51	140
Choice allowed	2.57	.99	433	3.29	1.12	140
Encouraging learning	3.43	.78	433	3.66	.74	140
Set work and feedback	3.35	.84	433	3.75	.76	140
Assessing understanding	3.92	.82	433	4.00	.86	140
Staff enthusiasm and support	3.71	1.00	433	4.13	.78	140
Student support	3.77	1.04	433	3.41	1.08	140
Interest and enjoyment	3.37	1.13	433	3.67	1.00	140

It is noticeable that the ratings of final year students were consistently higher than those of first year students, with figure 7 and table 5 showing a very stable pattern and a similar spread of responses. This implies that the final year course units were perceived by the students as TLEs which were more likely to encourage high quality learning than the first year TLEs investigated. The only exception was the rating obtained for student peer support which was higher for first year than final year students. This may indicate, for instance, that students supported each other less in the final year or, alternatively, that there was less need for mutual support in the final year. It is also notable that

the scores for 'choice' were generally low, especially for first year course units. Research on student learning has highlighted that the availability of choice is one aspect within TLEs that can influence students' approaches to learning and studying in a positive direction, as it tends to encourage a deep approach. The relative absence of perceived choice in Economics, particularly in the first year units, might therefore merit some attention. More attention might also need to be devoted to first year introductory Economics courses in general. Both the literature and ETL fieldwork seemed to suggest that introductory Economics may be regarded by many Economics departments as something of a routine task which does not require that much specific attention. However, the fact that the first year courses were consistently rated less favourably than final year courses may indicate that they are perhaps more complex TLEs than many Economics departments assume. There may be considerable potential in a major rethink of introductory Economics.

ii. Interview data

The standard format of the teaching-learning environment in Economics

The review of the literature has already highlighted the way in which TLEs in Economics have a tendency to use a chalk and talk approach and be relatively uniform. Aspects of such uniformity were also present in the data. At introductory level there was relatively wide agreement on the concepts and the curriculum that were taught. A focus on concepts and coverage led to content-driven, full curricula which had a tendency to result in a brisk pace that made learning and understanding difficult for some students.

> S: Fifty five slides in one lecture of 50 minutes, I just thought that was a bit too much. It got a bit crazy, there was just too much trying to be squeezed in I think. Some of it didn't need to be there.
>
> S: I think in almost all of this term as well, (they) try to tell us so much in one lecture, basically hardly (have?) time to get to all the stuff they want to say, so they almost rush you through it the whole 50 – 55 minutes to try and get it all in there. Whereas in my other lectures that's not really the case, but definitely this module more than the others. They're really having to just rush through it because they seem to have so much to get through.
>
> I: And what effect does it have on you?
>
> S: It means it's harder to take it in really, if you are rushing from one idea to another.
>
> S: It's more a case of writing it down and trying to come back and see what it actually said later, it's hard to write and also listen and understand the concept and think how you are going to apply it.
>
> (E3F-stu5)

In first year courses in particular, textbooks were used as a matter of course, which in itself had a standardising effect on the introductory curriculum. A deductive 'theory first' approach 'in which students are schooled into an understanding of various theoretical models and then invited to apply such models to contemporary problems' (Vidler 1993: 179) was used in virtually all the settings.

All the course units investigated were delivered in a lecture-tutorial format, with tutorials fulfilling two major functions. On the one hand, they had the explicit purpose of taking content introduced in lectures further, most frequently through tutorial questions which required the students to work through problems, scenarios or cases by applying the concepts which had been introduced in the relevant lecture(s). The other purpose of tutorials was to go over lecture material by revising it and providing additional explanation and depth, particularly if lectures had been difficult or fast-paced or the students did not have any previous knowledge of Economics (see above).

In terms of their delivery, the final year units tended to use the same standard framework of teaching-learning activities and assessments described above, but also diverted from the norm by integrating a few, somewhat more unusual components. The assessment of E1L comprised the assessment of students' contributions to tutorial discussions, carried out by the tutors as well as students' peers*.

*This, however, was criticised by the students for lack of clarity and for failing to consider the quality of understanding achieved when marks were awarded.

In E3L students were given the opportunity to answer a seen examination question on a topic not covered by the lectures and tutorials, which they could research in their own time and for which a structured approach consisting of groupwork preparation and a group presentation was proposed by the course team*. Also in E3L, one tutorial session took a different format from the standard discussion of tutorial questions by involving students in an economic experiment (see literature review), which, according to the students, was highly successful in enhancing their understanding of and engagement with the theory targeted by this session.

> S: That was quite interesting actually because you read about the thing but you don't actually know how true they are. But when you are stuck there and you have no idea what anybody else is doing. At the end of the game we were all saying 'was it you that did that, was it you that did that?' and of course we didn't have any clue who was doing what until we were there.
>
> (…)
>
> S: It more illustrated what you didn't know, what you didn't realise. Because when you sat reading about it, (…) you just don't realise just how much they don't know.
>
> (E3L-stu2)

E2L comprised two very different TLEs, one for full-time and one for part-time distance students, whilst trying to enable both groups of students to attain the same learning outcomes. While the TLE for full-time students adhered to the standard lecture-tutorial approach, part-time students were provided with a set of materials for self-study, complemented by three Saturday tutorials and some additional support by e-mail and telephone. As to be expected, the nature of the experience differed considerably between these two groups of students.

All final year course units investigated also happened to have a strong applied and/or policy focus in terms of the curriculum content. Although this does not imply that final year Economics units always focus on application, this is consistent with the 'theory first' approach as applied to an entire degree programme. Both the successes and the problems which emerged in final year courses were to a large extent related to the way in which the TLEs were able to engage students with the theory-real-world relationship. Students on E3L commented favourably on the way in which being exposed to and able to experience and participate in one of their lecturer's own research contributed substantially to their engagement with and interest in economic policy and cutting-edge research. On the other hand, part-time students on E2L, who entered directly into the final year and had considerable practical experience in the financial services industries, found it difficult to deal with the applied focus of their course unit as they did not have the same solid grounding in economic theory as full-time students. Making the link between theory and policy was identified as the main challenge for students taking E1L by one of the lecturers.

While the assessment of all the final year units comprised one summative coursework essay and one examination involving essay questions, there was much more variation in the first year units, ranging from 100% coursework to 100% examination and including very different types of questions. The difference between the assessment formats and the types of questions used, once again, seemed to be motivated by the characteristics of the students which each individual course unit comprised.

Overall, our research seemed to confirm the impression gained from the literature that TLEs in Economics adhere to a relatively standard format, although we also found a certain amount of small scale variation, both in the teaching-learning activities and in the approaches taken to assessment. Further analysis will need to confirm whether there are any systematic differences between first and final year course unit. Although attempts to depart from the standard format, e.g. by taking a problem-based learning approach, were mentioned in the interviews with staff, the strong disciplinary norm coupled with contextual constraints may prevent the departure from the established curriculum content and format. Additional fine-grained research into the nature of classroom activities and interactions may be needed in order to ascertain what distinguishes TLEs from each other and specifically engages students of Economics.

*During the two years under investigation, the actual take-up for answering the seen question and participating in the structured preparation work was relatively low.

Congruence of curriculum aims

In most settings there was a good mesh between the purposes and aims of the course as expressed by the unit leader on the one hand, and students' perceptions of them on the other. Such congruence frequently seemed to be driven by one specific component of the TLE. In E2L, for instance, it was the Saturday tutorials for part-time students which specifically helped them to identify and engage with the most important aspects of the course.

> S: I found the tutorials, the Saturday morning tutorials are brilliant.
> S: Yes.
> S: (…) I have purely focused my revision on the three Saturdays, what was covered on the three Saturdays.
> S: Mm.
> S: Because I'd read the stuff … I mean, even like today, I did stuff, I knew what he was talking about, but just some things that he said, it just clicked with me.
>
> (E2L-stuA)

In E3F the new exam format adopted in the second year of the collaboration and the strong emphasis on short answer questions in particular focused students' minds on the way in which economic theories and concepts could be applied to specific cases and be represented by graphs.

> S: With markets, as I say, it's about behaviour, and I think that's reflected in the diagram, in terms of how you shape these curves, these cost curves, so, I mean, it is very good to have a picture up here about what the diagram looks like, but I think that in order to learn it in the best way, we need to have some kind of background to the behaviour, what I was just talking about, as in, for instance, with, about oligopoly, a small group of funds, we need to think about the behaviour, in terms of their costs, as in what they do if, the matter of what if? What if this happens, will this go down, will this go up? So as far as just learning the diagram by itself, that is very useful in itself, but there needs to be some kind of, you need to, I mean, it's not just used to learn it by rote, you need to think about the wider implications.
>
> (E3F-stuA)

Some interviews conveyed a very strong sense of congruence. Complete congruence, however, is more likely to be an ideal than an achievable reality. The changes made to E3F illustrated that it may be the process of aiming for congruence rather than congruence itself which can contribute considerably to the success of a TLE.

> L: (…) It's because we decided to change the assessment system we actually discussed what it is that we want to assess. (…) We were focused on problem solving: could they use the information that they've got? (…) Even in the 3rd year you will see students who have great difficulty in applying their knowledge from one context to another and so that was an essential part of the exam. Could they use the knowledge, could they use their theory so solve a problem?

Congruence with students

The TLEs in Economics were characterised by two very strong influences. The notion of WTP is based on the assumption of a disciplinary 'tribe' or community of practice which is characterised by a core of common practices. The review of the literature has already shown the strong consensus which exists among economists about what should be taught and the way in which this should be done. There were considerable similarities between the TLEs investigated by ETL which reflected a widely accepted disciplinary norm. First year courses, for instance, partially taught identical concepts, adopted very similar curricula and used the same or similar textbooks. Most of the course units investigated were delivered in a relatively standard fashion.

On the other hand, the data also highlighted a certain need to divert from this norm. This was usually motivated by having to accommodate very different kinds of students. Achieving congruence of TLEs with the diverse students who were part of them was perceived as a major challenge by the staff involved in the design and delivery of the course units investigated.

> L: It [heterogeneity] is the main challenge for our teaching and their learning. (…) It's a real .. battle, constantly.
>
> <div align="right">(E1F-sta1)</div>

There was a noticeable tension between the core WTP and a concurrent need to achieve congruence of the TLEs with the respective students. The nature and characteristics of the student intake determined the degree of divergence from the norm. The TLEs investigated can therefore be understood as a product of the interaction between a disciplinary core of WTP in Economics and the different student cohorts accommodated by each course unit (see Reimann 2005 for a discussion of the notion of congruence or constructive alignment with students and for further details).

One example for a TLE which diverted quite considerably from the disciplinary norm is E2F whose curriculum was radically changed in order to make Economics accessible to non-majors. This was largely done by eliminating technical aspects, concentrating on what was described as "clear principles" and using examples which were as close as possible to the student experience.

> L: My idea for an introductory economics is that it's got to be a base for all students. (…) It's not dumbing down. It's to take issues in economics and spend more time on parts of it rather than swamp them with diagrams and equations.
>
> (…)
>
> L: Well, last year I took a number of classes (…) and in 3 weeks I've used 2 diagrams. Some of my colleagues would use 200. (…) Instead of talking hypothetically about factories and stuff, the economics we can use for micro-economics is the economics of their everyday life. How do you spend money, use opportunity costs that way rather than saying the factory can produce guns or butter and that the factory produces so much of each. We're actually saying things like: you have a choice of going to the cinema, or you have the choice of staying home and saving money, or work at the pub. That's real economics! It relates it to the students' background. We have other programs where the students only do economics for one year so the module is for them as well and to get a basic grasp of principles of economics.
>
> <div align="right">(E2F-sta2)</div>

This approach contrasted distinctly to that taken in E3F. Here, diagrams were foregrounded as crucial for students' understanding of key concepts in Economics, and by changing the format of the examination and developing appropriate short answer question, the entire TLE of this course unit was also made more congruent with diagrams as core representations of WTP in Economics.

> L: You've got to, that's what it's all about, isn't it, they've got to cope with (…) graphical and mathematical expression. That's what the whole course is. Whether they cope with it? Well, they have problems and we deal with it all the time. That's inevitably what the tutorials are for.
>
> <div align="right">(E3F-sta1)</div>

In the Economics settings investigated by ETL each individual context showed a slightly different take on WTP and a different level of convergence or divergence from the disciplinary norm. However, not adhering to the norm may also be problematic. What in the first quote was portrayed as a philosophically and pedagogically different, yet equally valid approach to Economics, others may regard as representing a lower level of economic understanding, which is why the interviewee in the first quote referred to 'dumbing down'.

In order to address and cope with such student heterogeneity, staff in Economics were found to adopt a number of different strategies. Assigning more or less importance to diagrams and mathematical expression was only one example of the way in which TLEs were made more congruent with students. In the preceding sections of this report, differing emphases on econometrics and data analysis have already been mentioned. Another example is E1L where a decision was taken was to make the assessment more discursive in order to align it with the weaker students.

> L: (…) We are going to change the nature of the assessment. We are going to ask them to do fewer questions in the examination and make them more (…) discursive (…), play down the analytical theoretical core (…), give them a bigger field to gallop in rather than making them jump over hurdles. We are going to see if they can see the implications more of what they are doing more than

just repeat this bit of analysis or explain this bit of analysis and then say why it's important.

<div align="right">(E1L-sta2)</div>

A relatively common strategy taken was to separate students by providing different tutorial groups, for instance, for students on different programmes of study (E2F), full-time and part-time students (E2L) and students with and without previous knowledge of Economics (E3F). Aligning the environment with the majority, or with a group that had considerable representation on the module, appeared to be another strategy aimed at congruence with students. E3F, for instance, was predominantly aimed at students majoring in Economics. Both E1F and E2F were designed with students who did not have any previous knowledge of Economics in mind. In all of these cases, making the TLE congruent with one particular group of students seemed to have implications for the other group(s) with which the TLE was not congruent. Students with previous knowledge in E1F and E2F, for instance, tended to feel insufficiently challenged and stimulated.

This draws attention to the fact that in every course unit there may be students with whom the TLE is not congruent. Therefore explicitly integrating students into the conceptualisation of a congruent or constructively aligned TLE highlights that TLEs need to contribute to the achievement of high quality learning and understanding by all students which they comprise, not just by the majority or the perceived 'average' student. It also reinforce the message that, in the light of diversity, adaptations and changes may have to be made to TLEs in order to make them effective for a wide range of students.

The Economics data have shown that certain student characteristics had an impact on learning in Economics and that staff took account of the differences between students by attempting to make the respective TLEs as congruent as possible with the students. Therefore, incorporating students as an integral component into the model of a TLE captures the challenges of contemporary higher education and resonates much more with the actual experience of diversity made by academic staff and students in Economics.

Congruence of feedback

In several settings (E1L, E2F, E2L) student interviews drew attention to the absence of detailed and timely feedback for assessed work which had an impact on the quality of the learning which could be achieved. In the two large first year courses, there did not seem to be a systematic approach to feedback and practices varied considerably between individual tutors.

> S: What I don't like is that you just get told your mark, like what pass mark you get and they don't give you any feedback on where you've gone wrong and I don't like not knowing what I've done wrong in it.
>
> (…)
>
> S: We don't get any feedback so we don't know where we're going wrong so that's maybe why we don't understand what we're doing.
>
> S: If I knew where I'd gone wrong I would probably have a better understanding and go and read books to help me to learn. But we don't get any.

<div align="right">(E2F-stu4)</div>

> S: We did actually get it back to look at. I think it would be beneficial if he went through the paper. It would only take 15-20 minutes.
>
> I: What did you get? Did you get the mark?
>
> S: Yes
>
> I: Did it have comments on it?
>
> S: No, you didn't get comments on where you'd gone wrong.

<div align="right">(E1L-stu2)</div>

> S: My wife put it into perspective for me, that it came through the letter box, I opened it, and looked at it and fine. My wee boy is primary 2 … and she says Andrew gets more feedback on his homework than I've got in that.

<div align="right">(E2L-stuA)</div>

Student appreciated tutors going over the answers to a test during tutorial time as this helped them to understand what they got wrong. In one course unit the tutor gave the students formative feedback on written answers to tutorial questions, which was also regarded as helpful.

Congruence of student support

In all the settings the students tended to feel well supported and described staff as friendly, approachable and, apart from a few exceptions, available. The main support options were attending consultation hours, sending e-mails to lecturers or tutors and, in one first year course (E3F), additional drop-in sessions. Students in small units were also able to talk to their lecturer or tutor informally after a session, such as students on E1F, the smallest unit investigated, who seemed to have a relatively personal relationship with their lecturer. In contrast, the high number of students on E2F required almost continuous availability and a large amount of staff hours, which could be very draining for the members of staff concerned. First year students in large departments were more likely to feel isolated, while final year students in all settings were more confident in consulting staff. Students in smaller departments and final year students were also more likely to know who to ask. However, although students were generally aware of the availability of support, there also seemed to be barriers to support seeking. When asked, few students said that they had actually seen someone to obtain help. Consultation hours and drop-in sessions were perceived to be about specific questions or problems, while some students, particularly those who experienced most difficulties, seemed to be unwilling to attend them as they felt it to be inappropriate to admit not understanding 'any of it'. Some of them were also worried about losing face.

> S: Yes you always find if you go to one of those classes then they're going to think you're an idiot, you just don't go.
>
> S: Plus they don't really know your strengths and your weaknesses of what you can do.
>
> S: Yes, if you go to the extra classes all they see is your weaknesses.
>
> I: The other students or the lecturers or both?
>
> S: Both.
>
> I: So it's about loosing face with the group? (…)
>
> S: Not exactly loosing face, but you don't particularly want to admit that you are not as great as everyone else, it's more for yourself.
>
> I: Is that different to (at) school or college as well?
>
> S: With school you knew your teachers so much better. When they pick you out, they will realise that you were struggling and then you wouldn't have a choice.
>
> (E3F-stu2)

> S: Consultation hours are really really good and so few people go. I went (to) a lot last year. I have been less this year but I went a lot last year and I remember thinking this is such a best kept secret. Why isn't there a massive queue outside because you can sit there and go 'yes, but I really don't get where this has come from' and you can get it totally explained to you. It is really really good but it is what you make of it. You have to go along and be brave enough to say 'I don't understand'. You do feel stupid going in to speak to someone who knows everything there is to know about the topic and you feel that you are asking really basic questions but it just hasn't clicked in your brain and as soon as you speak to them about it … it doesn't always click but it at least helps.
>
> (E3L-stu2)

> S: They are always offering support and that, and maybe I should have made more use of that, but I didn't sort of think there was anything I really needed to ask. But then looking back there probably was. They are very open to offering assistance as well.
>
> (E2L-stuG)

Additional types of support and guidance were provided by VLEs and documents such as programme and course handbooks. Peer support was a feature of some of the units investigated, but it predominantly relied on personal friendships and students' own initiative. In E2L some part-

time distance students formed informal support groups which ranged from providing each other with moral support or pointing out useful sources of reference to discussing individual queries and assignment questions in some depth.

> S: The other thing was interpreting what was being asked of us, to help each other with that because one person would think we were being asked to do one thing, and other people would think, no, I don't see it like that, so we'd have a sort of e-mail debate until we'd got it sorted out, adding in speaking to a lecturer as well about it, to get his input and then trying to decipher what he actually meant by it.
>
> (E2L-stuH)

Group work was used in some tutorials as well as in E3L as preparation for the seen exam question, but none of the course units systematically and explicitly integrated group work and fostered it proactively. One staff interviewee even described Economics as an individualistic rather than a group discipline. There was also some indication of students in some settings being quite competitive and disinclined towards supporting each other.

> S: There was something that really annoyed me last year about student centred learning [preparation for the seen exam question]. We had to do a presentation, provide other people within the group (with) all the work that (..) done. Some people presented their work to the lecturer like they had to. When it came to giving their work to everyone else, they doctored it, changed things just to make sure people would write the wrong things in the exam. That really made me annoyed. I was less keen to share my work with anyone else because of that.
>
> (E3L-stu5)

Congruence of course components: course units consisting of two halves

Some of the units investigated (E1L, E3F, E3L) were taught by different lecturers in semester/term 1 and 2. In effect, this created two relatively separate TLEs within a single course unit. According to the staff interviews, there did not seem to be very much coordination and communication between the two people delivering the two halves. The students commented on the differences in content (e.g. microeconomics versus macroeconomics, closed versus open economy, theoretical versus applied Economics) and in teaching styles (e.g. delivery of lectures, lecture notes, lecturer enthusiasm). Although the split did not appear to have any serious impact on the quality of the learning achieved by the students, both content and teaching styles influenced student engagement. We therefore suggested in some settings that a focus on throughlines might have an integrative effect and could provide a more coherent learning experience; this, however, was not picked up by our collaborating partners. Both staff specialisms as well as pragmatic considerations had led to the split of the courses into two halves and those also seemed to override pedagogic considerations.

> S: There was a big –
> S: A little bit.
> S: - difference between the first and the second semester I think.
> S: a difference between, yeah.
> S: Entirely different.
> S: Yeah, it was.
> S: So it could be easy for you to do really good at one semester and not in the other one.
> I: Was that a problem? Or a positive thing?
> S: Not a problem.
> S: Well.
> S: I liked it.
> S: It was different, that was good.
> S: The problem is because they were different, for example me, I was very good in the first semester, but not as good in the second because I didn't have the background
> (…)

S: For me one thing I found difficult was that we were working at macroeconomics with one lecturer for the first semester, with his teaching style and all that, but in the second this changed. We had another lecturer, so it was basically a different approach, a different kind of reading. You had to start a different way.

(…)

S: There were like two separate modules I found, first and second semester. It was almost like you were doing two separate modules. That was a bit weird really.

(E1L-stu1)

S: Lecturer 1 expects quite a bit more, a lot better understanding of the models and using the models. With Lecturer 2, as long as you know what the theory is, and what the implications are and predictions and policy implications , he prefers that side, which makes his exam question easier to answer.

I: Lecturer 2 prefers the policy side of things and Lecturer 1 more the theoretical?

S: Lecturer 2 does work for the DTI in policy. Lecturer 1 actually does a lot of econometrics.

(E3L-stu1)

Similar issues arose in relation to large course units where tutorials were taught by a number of different members of staff. Not everybody seemed to follow the same approach and some tutorials were more aligned with the lecture programme than others, for instance if they were taken by the lecturer him/herself. Students commented on issues of equity and the potential negative consequences for the learning of those students who were unable to attend those more aligned tutorials.

Congruence of guidance: analysing and interpreting essay and examination questions

Analysing an essay or examination question and interpreting what it is asking them to do was an issue which caused problems for some Economics students. For the E2L essays this involved thinking about which direction to take and what specific aspects to include in the answer.

S: (…) Maybe just being able to narrow it down a little bit, you need a pointer or whatever, and that was really the only thing.

(E2L-stuG)

S: An interesting point on the assignment was the vagueness of the question, because I asked a couple of people to look at it and the general (consensus/concern?) was it was quite vague, in the sense of what direction we were expected to take it in. And it was interesting the comments that did come back on one of the assignments was that I hadn't been very specific.

(E2L-stuA)

For the short answer questions used in the new E3F examination, identifying the theory or concept which the question referred to plus the associated graph were crucial. Difficulties students may have experienced with interpreting questions were not necessarily due to a lack of general essay writing skills or exam techniques as such, but were subject-specific as they were closely related to the conceptual content which the questions aimed at. Some TLEs were very successful at conveying a sense of what was required. E3F for instance provided the students with a very clear sense of direction and understanding of what was required to give good answers to short answer questions in the examination. Part-time distance students in E2L found it helpful to obtain formative feedback on essay outlines, but the unit leader was unable to integrate this option explicitly into the assignment task as it would present a considerable strain on resources.

S: What I found useful, before I did my assignment, with both the topics I've done, I actually did a rough outline of what I was going to put in my assignment, and sent it to the tutor and said 'This is roughly what I'm going to put in my assignment, how does this look, am I on the right path?' And both times, from both modules, I got constructive feedback that actually made me change what I was putting in it slightly.

S: I did as well.

S: And I think that's why I've… in both modules I've had a good mark for my assignment, and I think it's purely because I actually said, 'Look, this is what I'm going to do.' They said 'Well what

you need to do, make sure there, that what we're really looking for is this and this, make sure that you're covering this sort of thing.' And that helped.

S: What's interesting around that is with the first module (…) where that was actively encouraged –

(…)

S: - it wasn't encouraged in this assignment, and I deliberately didn't send it off.

<div align="right">(E2L-stuA)</div>

In several settings the interviewees requested actual examples of good answers to serve as models, but these were not provided in any of the settings investigated. In E2L this was discussed as a possible collaborative initiative. Producing such model answers, however, would have been very time-consuming and may also have created the wrong impression that only one accurate answer exists, ruling out all other alternatives.

Making connections, application and examples

When asked what engaged and motivated them in their studies of Economics, the common thread through virtually all the interviews was the way in which students talked about the importance of examples and the application of economic theory to real life and current issues. Theory was often described as a necessary evil, the study of which did not generate great levels of enthusiasm.

I: The module, has that made you more enthusiastic about economics, less enthusiastic or basically the same as before?

S: Less enthusiastic.

S: Lesser.

S: Taken in isolation, very much less.

I: Why is that?

S: It's so theoretical.

S: It's really dry.

I: The same with you?

S: Yes, it's quite boring really. Get it done, hopefully it'll be applied in the next few years.

I: Is it the lack of application to the theory?

S: You've got to have this to apply, there's no way you could do application as well in the first year (…).

S: This is just a stepping stone module.

I: (…) Is there anything within the module, and within maybe the theoretical that does enthuse you? Are there things, where you think: yeah, I can engage much more with this, or this (is) something I really want to find out how this works and it stimulates me to learn more?

S: The only thing I cold think of like that would probably be the monopolistic competition, I thought that was very interesting, but then again I did a lot of A-level work and the way I was taught that was quite interesting, so I was quite interested in it all ready.

I: What made it more interesting then?

S: Well, at A-level we did case studies on monopolistic behaviours (of) different groups, (…) markets and things.

I: Again because you are aware of the application side of things, it makes it seem more relevant or?

S: Yeah.

I: Anything else (you?) can think of that did occasionally enthuse you?

S: Can't think of much.

S: Never got that really excited.

S: Excited is probably a bit too strong a term for this particular module, vague lukewarm, tepidness.

<div align="right">(E3F-stu5)</div>

In contrast, satisfaction was experienced when Economics enabled the students to understand the world around them, such as economic issues in the news, in their daily lives or their work, by

applying theoretical knowledge to examples. Examples and applications used in lectures and tutorials were not only said to promote engagement, but also to contribute considerably to understanding. The interviews suggested that students found it much easier to understand abstract concepts when they were grounded in real world experiences. Although the course units and the departments investigated differed in the attention and proportion of time devoted to theory, the crucial importance of examples for learning in Economics was mentioned by students in all settings, both first and final year and both in theory and application-focused units. Examples and applications helped to make abstract concepts accessible.

> S: The other guy [the tutor] is brilliant, he likes to use examples.
>
> (…)
>
> I: What makes the other one better?
>
> S: He puts economics in a way that we can understand. He uses football matches -
>
> S: - or alcohol.
>
> S: Something that we can relate to and we can say, right, we see what you mean.
>
> (E2F-stu3)
>
> S: You can see from television, newspapers … it makes you feel you have actually learned something as opposed to just reciting off theories. There is a real satisfaction to that actually. (…) And when you watch the news with friends that you can actually explain it to them. 'This is what it means. Let me explain it!' (…) It really makes you feel as if you have actually learned something useful.
>
> (E3L-stu2)
>
> S: I've actually found the economics side of things really interesting. Previously economics has been a complete bore. It's so drawn in theory. What they've done is driven it out into real life. Some of the textbooks we had were actually quite interesting because they were relating economic principles to what is happening in the UK or US. That has given me an appetite to think about doing something else in economics. Perhaps a more pure economics course. When we were taught economics at school or in bank exams, it was just equations, what does it do, it's a bit dry. I actually think the course has been a help. If I stay in the particular aspect of work I'm in, the course will help me develop in that. I was surprised.
>
> (E2L-stu3)

Making connections between theoretical concepts and the real world was also highlighted by staff, but as an issue with which students experienced particular difficulties. For instance, although students on E1L could talk about certain models as well as economic policies, they were not necessarily able to make the connection between the two and understood the way in which one influenced the other.

> L: The trick in economics is to take somebody's opinion and to trace it back to its theoretical root, to see what justification there is for that opinion. One of the problems in economics is that there are so many different models that conflict. So I see one of the important roles is to make people aware that .. somebody's beliefs or their attitudes at the end of the day will be based on some theoretical idea, some economic theoretical idea. (…) Whenever you hear politicians (…) say we ought to do this that or the other, you can at the end of the day trace it back to an economic model. Now I think this is what economics is all about. Making students aware of what those models are, making them aware of the strengths or weaknesses in those models .. tricky. Otherwise the discipline hasn't got a solid base to it. But .. to some people that makes the discipline theoretical. (…) It makes it less accessible to some students who are quite happy to talk about the evils of unemployment and the evils of inflation and the impact of inflation and the consequences of inflation. I think the causes are probably as important if not more important.
>
> (E1L-sta2)

It has been mentioned above that an appreciation of the relationship between theory and the real world lie at the heart of WTP in Economics. If this is the case, then the way in which students can be helped to understand the nature of this relationship and make connections between the two poles of the theory-real world continuum must be a central concern of the pedagogy of the discipline. Some of the literature reviewed in section 2 of this report has already given an indication of the kinds of

approaches such as case studies, problem-based learning and classroom experiments, which may be helpful in achieving this aim.

d.   Enhancing Learning and Teaching: Collaborative Initiatives

i.   The collaborative initiatives

Collaborative initiatives took place in five of the six settings. It was the interview data in particular which provided detailed insight into the nature of the TLEs as well as student perceptions thereof. Low return rates for the ETLQ in most settings (see table 3) prevented the quantitative analyses from providing much information on issues affecting student learning in those settings. In addition, the ETLQ was not sufficiently attuned to the context and discipline-specific issues that featured prominently in the Economics settings. The collaborative initiatives were therefore predominantly informed by the interview data and our understanding of the field gained by talking to our collaborative partners. While the quantitative data backed up and confirmed certain aspects of the findings in particular settings, they did little to illuminate the issues which affected the quality of student learning in the majority of the course units investigated. The interview data, on the other hand, provided an opportunity to take account of contextual variation and to follow up issues which emerged as having an impact on the quality of student learning within the individual settings.

In feedback reports produced for our collaborating partners, we brought various issues to the attention of the staff teams which had been identified as having an impact on the quality of student learning on the course units concerned, and the reports made a number of suggestions for fine-tuning the TLEs and enhancing student engagement and learning. For first year units, these included, for instance, a reduction in the pace of delivery coupled with an increased focus on depth of learning and reflection, both in lectures and tutorials, the systematic provision of guidance and feedback for assessed work, attention to the differing learning needs of students with and without prior knowledge of Economics, and increased congruence of lectures and tutorials delivered by different members of the staff team. The suggestions made in relation to final year units included further integration of the two halves of a unit, the provision of additional support and guidance in relation to assessed work, review and closer integration of innovative forms of assessment, such as peer assessment and seen examination questions. In several cases, however, the proposed changes were neither considered possible nor fully embraced by the staff team (see below for a discussion of the possible reasons).

Most of the issues which the collaborative initiatives eventually focused on were context-specific, rather than addressing themes cutting across settings. In fact, it was the variation between the individual initiatives which was striking. As the following sections will illustrate, several of them were designed as additional research into specific issues which were raised during the first round of data collection, rather than 'interventions' in the narrower sense as envisaged in the original ETL research design.

E1F

The staff interview had highlighted the role of elasticity as a threshold concept for E1F. The collaborative initiative consisted of further research on students' understanding of two threshold concepts, opportunity cost and elasticity, using everyday scenarios as proxies to access changes in students' thinking about these concepts in the course of the academic year. Data was collected in three stages and consisted of repeated written responses to everyday questions, as well as interviews with students and staff. The design and use of the questions provided the lecturer with a clearer focus for his teaching, and helped him to connect his teaching more explicitly to the student perspective. Distinct differences between the two threshold concepts emerged, both in relation to the teaching and the students' answers to the questions. Previous knowledge of the concepts acquired elsewhere, and a curriculum which deals with a sequence of a large number of concepts, seemed to have an

impact on the level of effort and engagement students displayed in relation to the threshold concepts investigated. At the end of the unit, some students' capacity for economic reasoning appeared to have become more sophisticated.

E1L

No collaborative initiative was carried out in this course setting.

E2F

The introduction of a virtual learning environment (VLE), the replacement of a 2-hour lecture slot by two separate 1-hour slots and the reduction of the number of coursework assignments from five to four were the changes investigated in E2F. While the ETL interview data supported the implementation of two of the three changes, all of them would have been made in any case, due to institutional requirements as well as being part of an agenda for change for E2F. Introducing two separate lecture slots successfully reduced the fast pace of the lectures, which had been shown during the first round of data collection to have an impact on student learning, and the lower number of assignments helped the students to cope better with the workload. The second set of interview data also showed that the introduction of the VLE had worked well, while it had not changed the learning experience of the students in any fundamental way.

E2L

The collaborative initiative in E2L focused on direct entry students who were taking the unit in part-time distance mode. The data also provided a more in-depth exploration of some of the issues which had already been brought up in the first round of data collection. Changes were made to the study materials for part-time students by raising the profile of the guidance about study and essay writing skills as well as providing additional targeted e-mail support in this area. The interview evidence suggested that helping students to develop a clear sense of direction and to give them an explicit indication of the kinds of things the essay is asking them to do is crucial. Enhanced guidance for essay writing has the potential to contribute considerably to the quality of student learning, but more attention needs to be given to the precise nature, format, timing and frequency of such guidance.

E3F

This collaborative initiative investigated a departmentally induced change which was expected to have a considerable impact on student learning in E3F. The format of the examination was changed to included multiple choice questions (MCQs), in addition to short answer questions (SAQs), while essay questions had been discarded. Both the quantitative and the qualitative data suggested that the introduction of MCQs did not have quite the negative effect which the ETL team had expected. MCQs made the students revise the entire syllabus rather than concentrating on selected topics only. Most of students' concerns were centred around MCQs being badly written, ambiguously worded and aimed at "catching them out". Students who obtained high exam scores on MCQs also scored high for SAQs and the students' approaches to studying (either deep, surface or monitoring) were significantly related to their overall grades, rather than to the different types of questions. Changing the examination format seemed to have set into motion a process of constructively aligning the TLE, which resulted in conveying to the students a very clear sense of what was expected. SAQs and diagrams emerged as core representations of economic understanding.

E3L

A distinguishing feature of E3L was the provision of two seen exam questions on content not covered by the course unit, one of which students could answer during the end-of-unit examination. As part of the preparation process, the students could opt to work on these seen questions in small groups. These groups were expected to pool and share their understanding of key research papers

and formally present their findings on the topic to one of the lecturers. The collaborative initiative investigated students' perceptions and experiences of the seen examination questions and the preparation process in more detail. In conjunction with the ETL team, one of the lecturers also set up a panel discussion for students on exam revision, covering both general issues and issues related to the seen exam question. Coincidentally, during the second year of the investigation, the actual take-up for the seen exam question was low. Those students who took up the opportunity to answer a seen question were generally confident about their research and independent learning skills, preferred coursework and essay-type questions, benefited from groupwork and found the question interesting and intuitively accessible. The main reasons for students not taking it up were related to the anticipated workload and their concerns about groupwork. Not participating in the formal preparation element was not necessarily negative since this gave the students more control over what to do, when and with whom, thereby making it perhaps even more genuinely student-centred.

Table 6: Overview of collaborative initiatives

Course unit	Most important issues arising from ETL data	Changes implemented/ investigated as collaborative initiative	Additional background to collaborative initiative	Outcomes of collaborative initiative	Concurrent changes	Other outcomes
E1F	'Elasticity' serving as threshold concept	Increased focus on 2 threshold concepts throughout course unit Collaborative investigation of sts' developing understanding of 2 threshold concepts		Notion of threshold concept useful for lecturer Some moderate improvement of st understanding Insufficient evidence whether 2 concepts served as thresholds for sts	Substantial decrease of recruitment to Economics programmes	Joint conference paper and book chapter Departmental involvement in FDTL5 Project on threshold concepts
E1L	Peer assessment Gaps in explicit guidance and feedback for assessed work Integration of 2 halves of unit could be closer	No	n/a	n/a	Unit leader's position in institution's management structure changed Substantial decrease of recruitment to Economics programmes	
E2F	Fast pace and large quantity of information in lectures High load through no. of assignments Gaps in explicit guidance and feedback for assessed work	Introduction of VLE Replacement of 2-hr lecture slot by two 1-hr slots Reduction of assignments from 5 to 4	Agreed changes would have been made in any case Introduction of VLE = institutional policy Use of two 1-hr slots not always possible	VLE had no substantial impact on student learning Pace was reduced by introduction of two 1-hr slots Reduction of assignments reduced load	Long absence of unit leader due to illness	

Course unit	Most important issues arising from ETL data	Changes implemented/ investigated as collaborative initiative	Additional background to collaborative initiative	Outcomes of collaborative initiative	Concurrent changes	Other outcomes
E2L	Gaps in support and guidance for p/t sts, part. for essay-writing Gaps in theoretical knowledge of p/t sts Integration of 2 halves of unit could be closer	Essay guidance for part-time sts provided by revised study guide in general and e-mail advice shortly before submission date	Revision of study guide would have taken place in any case	More detailed insight into issues related to essay writing (among others) No fundamental changes achieved	New course unit leader	
E3F	Fast pace and large quantity of information in lectures Different levels of engagement with micro and macro-Economics Sts' reluctance to use existing support	Further research on change of exam format: introduction of MCQs, emphasis on short answer questions	Suggested changes deemed not feasible Change to exam format would have been made in any case	Change of exam format had no negative impact on quality of st learning, new exam format contributed to making TLE more congruent	New departmental policy to reduce marking time by introducing MCQs	
E3L	Integration of seen exam question into TLE could be improved Sts revising limited no. of topics for exam	Further research into student perception of seen exam question Panel discussion on exam revision and seen exam question	Evidence did not identify particular shortcomings	Seen exam question benefited sts with good research and indept learning skills, best carried out independently and on voluntary basis Non-participation mainly due to anticipated workload and concerns about groupwork	New unit leader and lecturer for 2nd half of unit Fire alarm interrupted panel discussion	Independent application for follow-up research funding Plans for joint conference paper

ii. Questionnaire data

The following sections contain diagrammatical representations of students' perceptions of the respective TLEs as reported in the ETLQ. This is done by course unit, and for comparative purposes data collected before and after the collaborative initiatives are displayed next to each other. When comparing pre and post-collaborative data in all six settings, it will be immediately noticeable that pre and post scores are generally similar in spread, with ratings being either consistently up, down or very similar to each other. There are very few individual scales which produced scores falling outside this general pattern.

Due to the large differences between sample sizes and, in most cases, low return rates for the ETLQ, only basic descriptive statistics are used in this section. There were insufficient data to attempt correlations or to apply sophisticated statistical analyses. We also have to be extremely cautious in drawing conclusions from the quantitative data regarding the success of the individual collaborative initiatives. On the one hand, several of them consisted of more detailed research into the TLEs in question rather than the implementation of a specific change. Concurrent changes to the TLE, both planned and unplanned (such as, for example, new members of staff taking over a course unit or parts of it, staff illness or the introduction of a VLE across an entire institution), are also likely to have had a considerable impact on the nature of each TLE and therefore will be reflected in the post collaborative initiative scores. Issues related to change will be discussed in more detail below. In addition, there may have been substantial differences between the students who completed the ETLQ in the first and in the second year of the collaboration, so that differences between the ratings of the TLE may simply reflect the differences between those two groups of students rather than the impact of the initiative. Taking all these caveats into account, very few conclusions about the success of each collaborative initiative can be drawn from the questionnaire data reported below.

E1F

Figure 8: E1F - Perceptions of teaching-learning environment, before and after
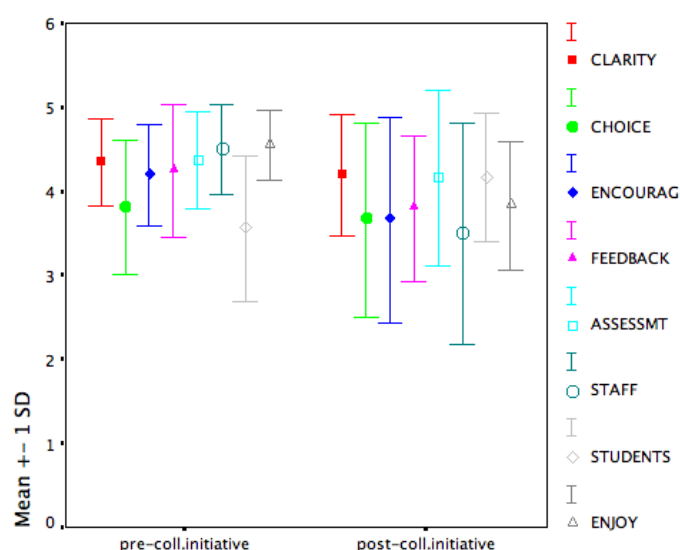
Table 7: E1F - Perceptions of teaching-learning environment, mean and standard deviation

	Pre-collaborative stage			Collaborative stage		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	4.42	.49	10	4.15	.60	4
Choice allowed	3.9	.81	10	3.50	1.00	4
Encouraging learning	4.12	.61	10	3.75	1.01	4
Set work and feedback	4.20	.71	10	3.90	.74	4
Assessing understanding	4.40	.57	10	4.13	.86	4
Staff enthusiasm and support	4.50	.53	10	3.75	1.19	4
Student support	3.75	.89	10	4.25	.65	4
Interest and enjoyment	4.25	.76	10	4.00	.71	4

E1F students rated their TLE very highly. When comparing pre and post-collaborative initiative scores, the scores for all scales, apart from student support, were lower after the collaborative initiative. There were also some changes in the spread of the scores, but this is to be expected considering the very small sample size. The sample size renders any comparisons extremely problematic.

E2F

Figure 9: E2F - Perceptions of teaching-learning environment, before and after collaborative initiative, semester 1 and semester 2 data combined
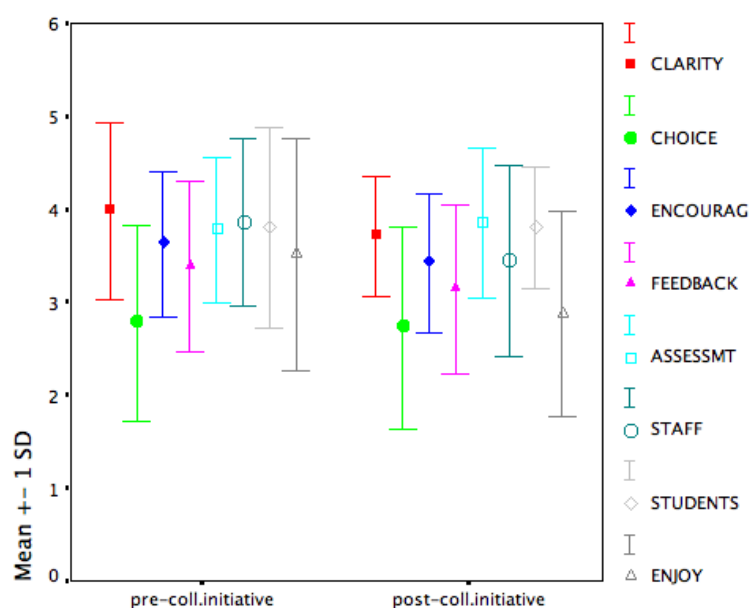
Table 8: E2F - Perceptions of teaching-learning environment, mean and standard deviation

	Pre-collaborative stage			Collaborative stage		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	3.95	.92	75	3.90	.65	86
Choice allowed	2.74	1.06	75	2.86	1.13	86
Encouraging learning	3.45	.91	75	3.32	.82	86
Set work and feedback	3.54	.89	75	3.44	.90	86
Assessing understanding	3.85	.76	75	3.77	.91	86
Staff enthusiasm and support	3.85	.96	75	3.87	.94	86
Student support	3.65	1.18	75	3.62	.91	86
Interest and enjoyment	3.32	1.35	75	3.01	1.14	86

E2F shows a relatively consistent pattern in that pre and post-collaborative initiative scores were relatively similar, both in terms of the mean and the spread of the scores. The only scale which showed a difference of any significance was the one referring to student interest and enjoyment. Here a somewhat lower score was obtained after the collaborative initiative. Considering that E2F was a compulsory unit comprising a very wide range of non-Economics majors, it is perhaps not very surprising to obtain a somewhat low score for interest.

Figure 10: E3F - Perceptions of teaching-learning environment, before and after collaborative initiative
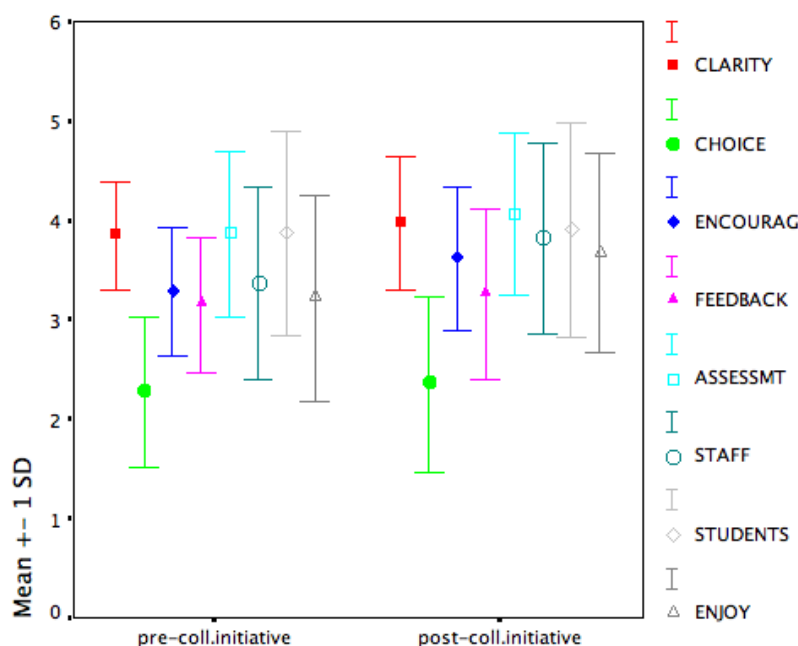
Table 9: E3F - Mean and standard deviation

	Pre-collaborative stage			Collaborative stage		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	3.85	.56	122	3.94	.70	136
Choice allowed	2.32	.82	122	2.38	.87	136
Encouraging learning	3.29	.67	122	3.57	.73	136
Set work and feedback	3.14	.72	122	3.28	.84	136
Assessing understanding	3.87	.85	122	4.06	.79	136
Staff enthusiasm and support	3.33	1.02	122	3.80	.99	136
Student support	3.85	1.04	122	3.86	1.05	136
Interest and enjoyment	3.26	1.07	122	3.62	1.00	136

E3F equally shows a relatively consistent pattern in that the post-collaborative initiative scores were very similar to the pre-collaborative initiative scores and only occasionally slightly higher. Again, the spread of the scores was also very similar. The scales for which the highest improvements were obtained were staff enthusiasm and support and (student) interest and enjoyment. As the collaborative initiative focused on assessment, it is important to devote some attention to the score obtained for the assessment scale. The slight improvement of the score illustrates that the introduction of MCQ did not have the negative effect which had been expected. It is unclear whether the changes made to the assessment or other factors were also responsible for the improved scores for some of the other scales.

E1L

Figure 11: E1L - Perceptions of teaching-learning environment
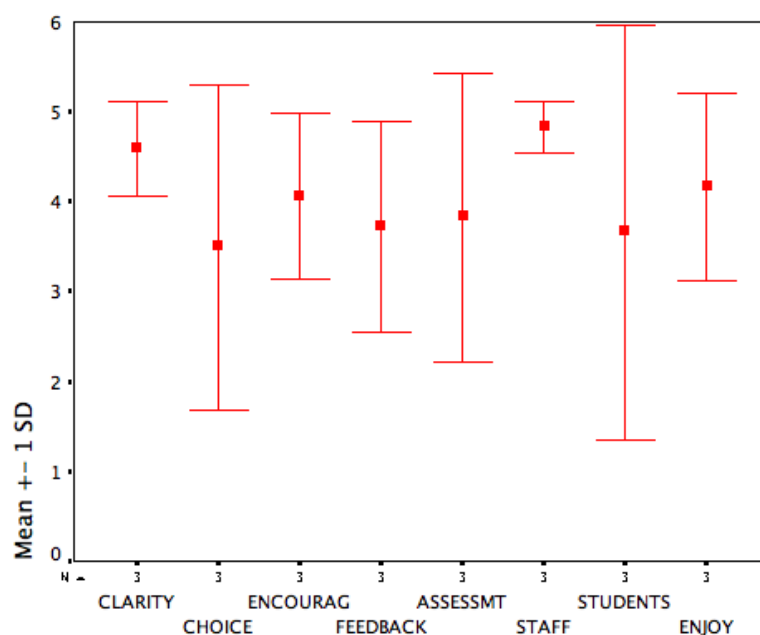
Table 10: E1L - Perceptions of teaching-learning environment, mean and standard deviation

	Pre-collaborative stage		
	Mean	*SD*	*N*
Clarity and coherence	4.43	.50	6
Choice allowed	3.67	1.37	6
Encouraging learning	4.2	.62	6
Set work and feedback	3.93	.93	6
Assessing understanding	4.42	1.20	6
Staff enthusiasm and support	4.58	.58	6
Student support	4.00	1.52	6
Interest and enjoyment	4.33	.75	6

For reasons of completeness data on E1L have been included, although no collaborative initiative took place in E1L. Similar to E1F, very little can be concluded from the E1L data as the sample size was extremely small.

E2L

Figure 12: E2L - Perceptions of teaching-learning environment, before and after collaborative initiative
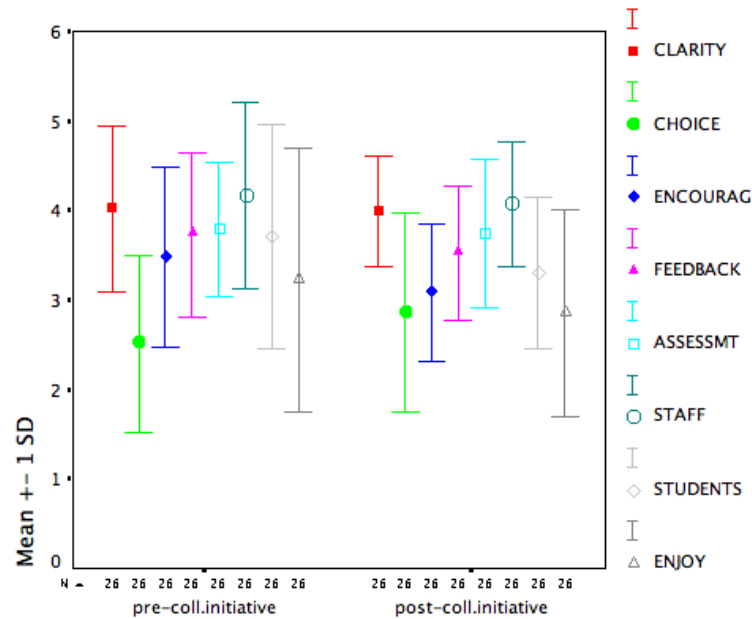
Table 11: E2L - Perceptions of teaching-learning environment, mean and standard deviation

	Pre-collaborative stage			Collaborative stage		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	4.46	.36	28	4.24	.55	34
Choice allowed	3.68	.98	28	3.27	1.10	34
Encouraging learning	4.18	.51	28	3.78	.62	34
Set work and feedback	4.15	.70	28	3.75	.67	34
Assessing understanding	4.38	.56	28	4.22	.70	34
Staff enthusiasm and support	4.56	.48	28	4.07	.79	34
Student support	3.30	1.11	28	3.47	1.13	34
Interest and enjoyment	4.07	.75	28	3.74	.87	34

When comparing pre and post-collaborative initiative scores, the scores for all scales, apart from student support, were lower after the collaborative initiative. The spread of the scores was also very similar. The higher score obtained for student support tallies with the interview data in which there was evidence of part-time students being more proactive in forming informal peer support groups in the second year of the collaboration.

E3L

Figure 13: E3L - Perceptions of teaching-learning environment, before and after collaborative initiative
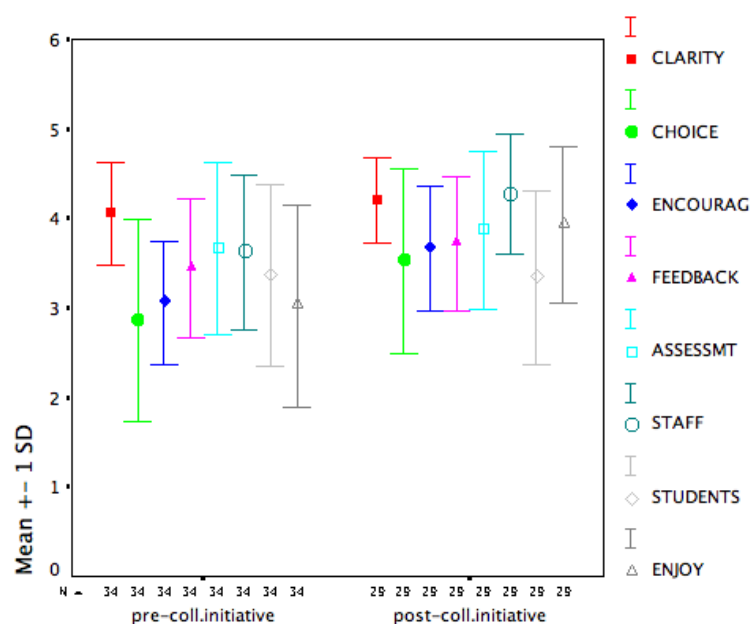
Table 12: E3L - Perceptions of teaching-learning environment, mean and standard deviation

	Pre-collaborative stage			Collaborative stage		
	Mean	*SD*	*N*	*Mean*	*SD*	*N*
Clarity and coherence	4.25	.46	37	4.16	.51	35
Choice allowed	3.41	1.09	37	3.11	1.14	35
Encouraging learning	3.69	.67	37	3.35	.74	35
Set work and feedback	3.77	.71	37	3.58	.76	35
Assessing understanding	3.84	.82	37	3.71	.91	35
Staff enthusiasm and support	4.3	.63	37	3.95	.81	35
Student support	3.46	.96	37	3.38	1.01	35
Interest and enjoyment	3.91	.81	37	3.43	1.09	35

When looking at the data obtained for E3L, we need to bear in mind that the collaborative initiative consisted of further research, not the implementation of a change. The scores for all scales were higher after the collaborative initiative, with some of scales producing relatively large differences. In the second year of the collaboration, particularly high scores were obtained for clarity and staff enthusiasm and support.

In summary, according to the ETLQ the collaborative initiatives in Economics did not lead to any substantial changes in students' perceptions of their respective TLEs. However, the low sample sizes and/or return rates in several of the settings mean that this can only be a very tentative conclusion. Overall the changes between pre and post collaborative initiative scores tended to follow a clear pattern across all scales rather than any individual scales standing out as having produced a substantially different score. This suggests that the collaborative initiatives did not lead to a dramatic change in a particular aspect of the TLEs, at least not according to the quantitative data. Paradoxically, ETLQ scores went down in some of the settings where a change based on ETL

evidence had been implemented, whereas scores improved in other settings where the collaborative initiative consisted of additional research rather than a specific change. This leads us to thinking that differences between the student cohorts over the two year and the impact of other concurrent changes may have had a much more significant influence on the quality of the student experience and their ratings of the ETLQ items that had been originally anticipated. The latter will be discussed in the following section.

iii. Engagement with collaborative initiatives and issues related to change

The following paragraphs will discuss some of the influences which shaped the nature of the collaborative initiatives in Economics. When first contacting potential collaborating departments, in most cases this contact was not made directly with the unit leader, but via the head of department or another senior member of staff. Most of the unit leaders welcomed the opportunity to be involved in a project focusing on teaching and learning and were generally very helpful in facilitating ETL data collection. They appeared to be genuinely interested in participating in the research, happy to discuss their views and experiences of the course settings in question and very engaged in the data collection process. Both informal discussions and recorded staff interviews were appreciated as they seemed to provide them with a stimulus to make their own aims and the purposes of the course units more explicit as well as reflecting upon the effectiveness of the TLEs in achieving those aims.

When the feedback reports on the baseline data were presented to our collaborating partners, take-up of the suggested changes varied. While positive reports seemed to generate reasonable levels of engagement, those reports which highlighted weaknesses and scope for change did not always result in commitment to taking action. In some instances, the changes suggested in the first feedback report were disregarded or deemed unfeasible. One possible reason might be that they were going against the grain of the subject. In two settings, for instance, students had commented extensively on the way in which the fast pace of the lectures and a full curriculum prevented them from understanding the material. In one setting we were told that reducing the curriculum was impossible. It is likely that this is due to the standard nature of the Economics curriculum which dictates that certain concepts must be "covered" at the beginning of a course. The focus on threshold concepts, on the other hand, seemed to have gone with the grain of this very conceptual discipline and therefore generated considerably more engagement and ownership.

In some cases engagement with ETL and with the proposed collaborative initiatives appeared to be due to the interest and time of individuals – or lack of them. However, not engaging with the suggestions made by ETL did not imply that staff were uninterested in enhancing the TLE of the respective course unit. On the contrary, members of staff with an interest in teaching and learning were perhaps more likely to have their own agenda for change and therefore did not necessarily adopt the ETL one. Therefore going with the grain of the particular context concerned was probably as important as going with the grain of the subject. In one setting, the collaboration had started at a point when the whole course unit was given a substantial overhaul. Both the unit leader and the head of department continuously sought ways in which the course could be improved and conducted their own independent research into the student experience. The focus of their attention was on making Economics accessible to non-majors and to enable as many students as possible to successfully complete the course. Therefore those proposals made by ETL which seemed relevant to their aims were readily picked up, while others were more likely to be ignored. Every course team continued to make changes, regardless of the evidence collected by ETL, and changes were reviewed without necessarily involving the ETL team. The ownership of changes lay distinctly with the course unit teams and anything which might have been interpreted as ETL claiming ownership of changes was firmly rejected.

Instead of initiating and following up one specific change, most of the collaborative initiatives developed into further research into one or more issues which the first round of data collection had highlighted. In E3L we had found varied student opinion and take-up of the opportunity to prepare and answer a seen exam question. The option stayed in place, but was investigated more in-

depth during the second round of data collection. In some instances collaborative initiatives tracked changes which were happening anyway or which the course team decided to implement regardless of or even despite ETL. In E3F, for example, multiple-choice questions were introduced into the examination against our advice since we expected a negative impact on the quality of student learning. While our own suggestions for other improvements in E3F had not really engaged the staff team, increasing the use of MCQ had coincidentally been adopted as a departmental policy. Although there were some initial reservations among the course team, the introduction of MCQs became increasingly popular because it promised to reduce the marking load and make students cover the entire syllabus when revising.

In the settings investigated, there was virtually no TLE which was not affected by changes in the wider environment, such as departmental developments and organisational changes. Individual members of staff seemed to have little or no control over most of these changes and the speed of change was fast. Concurrent changes included, for instance, new or different members of staff taking over teaching duties or unit leadership, staff illness, substantial decrease of student recruitment with potential implications for the survival of the department and individual careers, new departmental policy on examinations and the compulsory introduction of a Virtual Learning Environment (VLE) throughout the entire institution. Under those circumstances the stability of a TLE seemed to be an exception rather than the rule. The assumption underpinning the original ETL research design, namely that it would be feasible to measure and evaluate the impact of an isolated evidence-based change, turned out to be problematic. The experience in Economics illustrated that TLEs were continually changing and evolving and that different agendas and stakeholders influenced the direction of these changes. The challenge is to make sure that the focus of these changes and their evaluation is firmly on enhancing the quality of student learning.

iv. Focus on assessment

Different to other subject strands of the ETL Project, there did not seem to be a common subject-specific theme which united some or all of the collaborative initiatives in Economics. However, a considerable proportion of the data collected during the first and second round brought up issues related to assessment. The quality of student learning in Economics in all the settings investigated was, at least to a certain extent, affected by assessment and staff in Economics readily picked up suggestions which required changes related to assessment. Changing teaching practices, on the other hand, seemed of less concern to staff and therefore featured less prominently in the collaborative initiatives. The following assessment-related issues were foregrounded in the feedback reports and discussed with staff, with some of them feeding into the collaborative initiatives:

- assessing students' understanding of threshold concepts by using everyday scenarios as proxies (collaborative initiative in E1F)

- aligning peer assessment of contributions to tutorials with high quality learning (suggested change in E1L)

- moving from assessment by examination to continuous assessment (change made prior to collaboration with ETL in E2F)

- reducing overload by reducing the number of assessed assignments (collaborative initiative in E2F)

- developing a more systematic approach to feedback (suggested change in E1L and E2F)

- helping students to interpret essay questions and grasp the requirements of Economics essay writing (collaborative initiative in E2L)

- considering ways in which a formative test can be changed to make students take it more seriously (suggested change in E3F)

- investigating the impact of changing the examination format from essay questions & short answer questions (SAQ) to SAQ & MCQ (collaborative initiative in E3F)

- investigating the impact of a seen exam questions about a topic not covered by the syllabus (collaborative initiative in E3L)

The list above comprises very different issues and initiatives. It may be significant, however, that assessment emerged as a relatively important aspect of TLEs in Economics which was also endorsed by Economics staff. The core role of assessment for high quality learning is stressed in Biggs' notion of constructive alignment (Biggs 1999) and in Economics it may in fact be one possible key to the enhancement of TLEs.

5.   CONCLUSIONS AND IMPLICATIONS

From a level of generality Economics comes into view as a strongly identifiable disciplinary 'tribe' or community of practice characterised by a well-established core of ways of thinking and practising (WTP). Within this community pedagogy is often conceptualised in economic categories and economic discourse is employed to refer to teaching and learning. As already suggested by the Economics in higher education literature, most of the course units, in particular first year ones, followed a relatively standard lecture-tutorial approach, relying considerably on textbooks and tutorial questions. There emerged a degree of consensus and uniformity in relation to curriculum, with a dominant neo-classical and deductive, 'theory first' approach appearing to prevail in most settings.

However, the investigations undertaken also found considerable variation and heterogeneity of the students in these settings. Developing and employing the conceptual framework of congruence, they examined the resulting challenge for staff in Economics of constructively aligning TLEs with the diversity of their different student cohorts, and the strategies adopted to cope with such heterogeneity. Coupled with the contextual contingencies arising from departmental location, institutional policies and other broader environmental risk factors, a noticeable tension seemed to arise between the core of accepted practice and a need to divert from it. On the one hand, congruence of TLEs with the students was seen as a major challenge. In this respect, first year units appeared to be particularly demanding, There was a greater diversity of students, more variety in terms of their needs, programmes enrolled for and prior knowledge and what had to be dealt with at that stage. The first year wass also a time when students were learning to engage with the discipline and become acculturated to working in higher education more generally. Despite such diversity, the mainstream orthodoxy appeared to lead most lecturers and module designers, with only a few exceptions, to adhere to a standard curriculum of widely accepted intended learning outcomes and to deliver an approved body of knowledge through relatively standard teaching methods, only making subtle or implicit adjustments. In broad terms, this dilemma might partly be represented as whether the discipline is best conceived and taught as a received and validated body of knowledge which students simply need to absorb, or as a way of thinking about the world and solving real-world problems. A tendency to the latter stance has implications for pedagogical innovation documented in the Economics education literature in terms of activities that may be more engaging, interactive and student-centred.

The importance of helping students to understand the nature of the relationship between theoretical concepts and the real world and the role which application of theory and examples have to play emerged as central to the pedagogy of the discipline. While Economics has traditionally used a deductive 'theory first' approach, the New Economics has highlighted the advantages of an inductive approach, in particular the way in which it might challenge students' everyday conceptions of economic phenomena (McCormick and Vidler 1994, Vidler 1993, Thomas 1991). Studies carried out in disciplines other than economics as well as more generic educational research have equally emphasised the benefits of an inductive, problem-first approach for an active construction of conceptual understanding and the acquisition of expert problem-solving strategies (e.g. Dukes,

Pritchard and Morote 2002, Neubert and Ginko 1992, Heller, Keith and Anderson 1992, Heller and Hollabaugh 1992). Exemplified by some of the data discussed in this report, such an approach would start with problems or cases and derive concepts, theories and models from them, as substantiated by the case study, problem-based or experimental approaches referred to in the Economics education literature. In problem-based learning (PBL), for instance, "the problems are the curriculum, and in going about solving those problems the learner seeks the knowledge of the disciplines, facts and procedures that are needed to solve the problems" (Biggs 1999: 207). Hounsell (1997) cites a study conducted by Eraut, MacKenzie and Papps in 1975, during which students of economics learnt concepts and analytical techniques in a problem first rather than a theory first approach, thus allowing them to "anchor" their knowledge "in a recognisable reality" (Hounsell 1997: 244). In line with students' preference for examples and applications, an inductive, problem first approach could contribute to understanding and engagement. It would also have the potential to circumvent the perception of revision as students with previous knowledge of economics would be confronted with problems and questions they have not encountered before. One of the recommendations arising from this research is therefore to continue experimenting with such an approach and to integrate it more systematically into the undergraduate curriculum.

The investigations in Economics have also highlighted a general interest of academic staff in assessment issues and a fundamental awareness of its importance. In the settings investigated, assessment was already used as a vehicle for change, and this has pointed towards assessment as a possible lever for the enhancement of TLEs in Economics. In this process it will be crucial to focus economists' attention on the impact which different kinds of assessment may have on the quality of student learning. The challenge lies in making sure that changes to the assessment do not only address practical issues, such as easing the marking load, ensuring syllabus coverage or increasing students pass rates, but also to consider the effect such changes may have on students' perceptions of the TLEs, on their approaches to learning and studying and, ultimately, the quality of the learning outcomes that can be achieved. Our analyses have illustrated that for assessment to be successful, it must be embedded in a genuinely congruent TLE, in which all components support each other and encourage high quality high level learning. Such a TLE must also include assessment guidance and feedback geared towards helping students to understand and engage with what is required to do well, in order to tackle specific tasks and questions within in a course unit as well as in the discipline as a whole. One of the collaborations indicated that changes made to the assessment led staff to rethink the entire TLE of the course unit, resulting in increased congruence (Reimann and Xu 2005). However, despite the interest of staff in assessment, the ETL findings also drew attention to other, perhaps less discipline-specific issues which staff in Economics appear to be less aware of. These include, for instance, helping students to actively use the available support and making sure that course units which are organised and taught by different members of staff still provide a coherent learning experience for the students.

Another key finding of the ETL research in Economics is related to the nature and complexity of change. The original ETL research design had assumed that initial analyses of quantitative and qualitative data would identify issues to be addressed through collaborative initiatives, and that the effects of such initiatives could be evaluated through a subsequent round of data gathering and analysis. However, this two-stage pattern of enquiry and collaboration with partner institutions did not, in the event, materialise exactly as envisaged. It is interesting to speculate why this situation arose. One weakness of the research design as originally outlined might well be that it did not take sufficient cognisance of the existence and impact of other, perhaps more significant changes – that is, determinant variables arising mainly from the institutional, cultural and policy contexts of the settings in which collaborative initiatives took place. This might have been why, paradoxically, in certain settings where a collaborative initiative had taken place, the ETLQ ratings stayed the same or decreased, whereas in a setting where there had been no collaborative initiative, ratings were found to have improved.

What emerged was that most of the issues which the collaborative initiatives tried to address tended to arise from contextual (rather than subject-specific) imperatives, reflecting strong determinant

factors such as current funding environments, issues of recruitment and retention, and staff workloads. These contextual determinants on the whole overrode subject-specific determinants in the TLEs investigated, and the initiatives differed considerably from each other, reflecting a similar variation in contexts. These strong contextual drivers tended to mean that staff in the collaborating departments were motivated by a different logic arising from their own immediate departmental context, their institutional culture and history, and their policy environment. In several settings staff operated under conditions of considerable pressure and increasing workloads. Practice in the collaborative settings was subject to risks originating in the wider environment which occasioned departmental developments and organisational changes. Staff action and preoccupations were focused on minimising or managing such risks though it appeared on occasion that this porosity to risk and instability within the TLEs, e.g. staff illness, new institutional directives, falling recruitment, was not always subject to their control. Hence those feedback reports to departmental partners derived from the ETL evidence base which highlighted scope for change, did not always result in commitment to taking action where this was perceived as going against the grain of this other compelling logic arising from the departmental or institutional context.

It is worth pondering whether the lack of action taken in relation to some of the proposals made by the ETL team might be attributable to the fact that the ETL Economics research team were not practising members of the disciplinary 'tribe' but situated as clearly peripheral to the community of practice. It is perhaps likely that the changes suggested by the team within the collaborative initiatives did not sufficiently 'go with the disciplinary grain' of Economics to engage the academics in the collaborative settings. The exception to this was the focus on threshold concepts in E1F which seemed to have gone with the grain of this very conceptual discipline. This, in turn, generated engagement and ownership which resulted in further collaborative initiatives. Although the introduction of MCQ in another setting had not been based on ETL findings, the investigation of their impact on student learning was met with some degree of interest from staff, possibly due to the fact that MCQ are in fact popular assessment instruments in Economics. Another collaborative initiative which produced considerable engagement was the in-depth exploration of student engagement with the seen exam question in E3L. It is worth noting that those collaborative initiatives did not strictly conform to the original ETL research design, by not implementing a change as such, but consisting of more detailed investigations of student engagement and understanding.

Two of these collaborative initiatives subsequently fed into additional follow-up research. In one of those settings, institutional funding was sought and granted to analyse the outcomes of using seen exam questions across the entire department. The threshold concepts strand of the enquiry has since become the focus of a current FDTL5 project in Economics funded by HEFCE and involving four UK project universities, of which two were collaborating ETL partners. This subsequent national study can, in many respects, be viewed as an additional de facto collaborative initiative of the Economics strand of ETL. Threshold concepts are the subject of a past and a forthcoming international conference symposium involving members of the original ETL collaborative partnerships (European Association for Research on Learning and Instruction bi-annual conference 2003 and 2005). Threshold concepts also form the basis of a forthcoming book (Meyer and Land 2006), to which partners from a collaborating institution have contributed chapters (Reimann and Jackson 2006, Davies 2006). This subsequent development and application of the notion of threshold concepts within various disciplinary contexts has attracted international interest and has been a further substantial research output of the Economics strand of ETL.

Acknowledgements

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Economic and Social Research Council
Teaching and Learning Research Programme
Enhancing Teaching-Learning Environments
in Undergraduate Courses

Learning and Studying Questionnaire

▲ ▲

Introduction to the Project

The ESRC Teaching and Learning Research Programme is a nation-wide initiative designed to provide a more effective research base to help staff to enhance the teaching they provide for students. Our project is the only one at university level, and we are investigating how students learn with differing kinds of teaching and support. We shall be looking at students' approaches to learning and studying in five contrasting subject areas in some 30 course settings across Britain. We shall also be asking students about their experiences on a particular course unit and about the kinds of knowledge and skills they feel they have developed. Staff will also be working with us on the project, and the overall results for the class (not for individuals) will be fed back to the staff to allow them to develop the course unit further. Bringing together findings from all the different course unit settings is intended to produce a general picture of the ways in which research can inform teaching. We hope that you will be prepared to join in this important study by completing this questionnaire and another one later on in the course unit, and that some of you will also be ready to talk to us about your experiences in higher education. If you want to find out more about the study, you can look at the web site at http://www.ed.ac.uk/etl

Data Protection Act

In accordance with the Data Protection Act, we have to ask you to sign the following declaration. You can be quite sure that all the information we collect will be used only for the purposes of research and kept confidential to the research team itself: it will not be released to anybody else.

I agree to allow the university to provide the research team with my name, contact details, grades and other information about my course of study. I also agree that this information, and the data collected from me, may be held and processed by the team for the purposes of research.

Sign

Print name

Date

D D M M Y Y

Background information ▲

Institution [   ]

Overall programme of study [   ]

This course unit or module [   ]

FOR OFFICE USE [ ] [ ][ ][ ] [ ][ ][ ] [ ][ ][ ][ ]

Identity number [ ][ ][ ][ ][ ][ ][ ][ ]

Please complete from the right, e.g. [ ][ ][1][2][3][4][5][6][7]

Age [ ][ ]   Year of study [ ]

Male [ ]   Female [ ]

1 What do you expect to get from the experience of higher education?

Put a cross in the appropriate box to indicate how strongly you agree with **each** of the following statements.

	Very strongly	Fairly strongly	Somewhat/ not sure	Rather weakly	Very weakly/ not at all
a. I want to develop knowledge and skills I can use in a career.	☐	☐	☐	☐	☐
b. I hope the things I learn will help me to develop as a person and broaden my horizons.	☐	☐	☐	☐	☐
c. I'm focused on the opportunities here for an active social life and/or sport.	☐	☐	☐	☐	☐
d. I hope the whole experience here will make me more independent and self-confident.	☐	☐	☐	☐	☐
e. I'm mainly here because it seemed the natural thing: I'd done well academically in the past.	☐	☐	☐	☐	☐
f. I want to learn things which might let me help people, and/or make a difference in the world.	☐	☐	☐	☐	☐
g. I want to study the subject in depth by taking interesting and stimulating courses.	☐	☐	☐	☐	☐
h. I mainly need the qualification to enable me to get a good job when I finish.	☐	☐	☐	☐	☐
i. I want an opportunity to prove to myself or to other people what I can do.	☐	☐	☐	☐	☐
j. When I look back, I sometimes wonder why I ever decided to come here.	☐	☐	☐	☐	☐

2 Reasons for taking this particular course unit or module

Put a cross in the appropriate box to indicate how strongly you agree with **each** of the following statements.

	Very strongly	Fairly strongly	Somewhat/ not sure	Rather weakly	Very weakly/ not at all
a. It's something I expect to find interesting.	☐	☐	☐	☐	☐
b. It's supposed to be a fairly easy course unit.	☐	☐	☐	☐	☐
c. It should look good on my CV.	☐	☐	☐	☐	☐
d. It should help me to understand the subject better.	☐	☐	☐	☐	☐
e. It's an area I will need to know about for my career.	☐	☐	☐	☐	☐
f. It's not what I would have chosen but it's compulsory.	☐	☐	☐	☐	☐
g. I understand it's a course unit that's particularly well taught.	☐	☐	☐	☐	☐
h. People I know and like are also taking this unit.	☐	☐	☐	☐	☐
i. It fits in well with the rest of my timetable.	☐	☐	☐	☐	☐

Other reasons ....

3   Approaches to learning and studying   ▲

This next part of the questionnaire has been designed to allow you to describe, in a systematic way, how you go about learning and studying. The technique involves asking you a substantial number of questions which overlap to some extent to provide good overall coverage of different ways of studying. Most of the items are based on comments made previously by other students. Please give your **immediate** reaction to **every** comment, indicating how you **really do** study.

We want to know about your **typical** ways of studying in **the subject area** of which this module or course unit forms a part. If you have not yet encountered a particular situation, try to imagine how you would react.

Put a cross in the appropriate box to indicate how strongly you agree with each of the following statements.

✓ = agree   ✓? = agree somewhat   ✗? = disagree somewhat   ✗ = disagree

Try not to use ?? = unsure   unless you really have to, or unless the item cannot apply to you.

▲

	✓	✓?	??	✗?	✗
1. I usually set out to understand for myself the meaning of what we have to learn.	☐	☐	☐	☐	☐
2. When I'm communicating ideas, I think over how well I've got my points across.	☐	☐	☐	☐	☐
3. I'm pretty good at getting down to work whenever I need to.	☐	☐	☐	☐	☐
4. Topics are presented in such complicated ways I often can't see what is meant.	☐	☐	☐	☐	☐
5. When I've finished a piece of work, I check to see it really meets the requirements.	☐	☐	☐	☐	☐
6. I try to make sense of things by linking them to what I know already.	☐	☐	☐	☐	☐
7. I try really hard to do just as well as I possibly can.	☐	☐	☐	☐	☐
8. On the whole, I'm quite systematic and organised in my studying.	☐	☐	☐	☐	☐
9. Often I have to learn over and over things that don't really make much sense to me.	☐	☐	☐	☐	☐
10. I'm quite good at preparing for classes in advance.	☐	☐	☐	☐	☐
11. I tend to take what we are taught at face value without questioning it much.	☐	☐	☐	☐	☐
12. For an essay or report, I don't just focus on the topic, I try to improve my writing skill.	☐	☐	☐	☐	☐
13. Ideas I come across in my academic reading often set me off on long chains of thought.	☐	☐	☐	☐	☐
14. If I'm not understanding things well enough when I'm studying, I try a different approach.	☐	☐	☐	☐	☐
15. I try to relate ideas I come across to other topics or other courses whenever possible.	☐	☐	☐	☐	☐
16. I carefully prioritise my time to make sure I can fit everything in.	☐	☐	☐	☐	☐
17. I often have trouble in making sense of the things I have to remember.	☐	☐	☐	☐	☐
18. I generally keep working hard even when things aren't going all that well.	☐	☐	☐	☐	☐

PLEASE TURN OVER

3 continued

	✓	✓?	??	✗?	✗
19. I'm just going through the motions of studying without seeing where I'm going.	☐	☐	☐	☐	☐
20. Concentration is not usually a problem for me, unless I'm really tired.	☐	☐	☐	☐	☐
21. Much of what I've learned seems no more than lots of unrelated bits and pieces in my mind.	☐	☐	☐	☐	☐
22. I generally put a lot of effort into my studying.	☐	☐	☐	☐	☐
23. I think about what I want to get out of my studies so as to keep my work well focused.	☐	☐	☐	☐	☐
24. It's important for me to follow the argument, or to see the reason behind things.	☐	☐	☐	☐	☐
25. I organise my study time carefully to make the best use of it.	☐	☐	☐	☐	☐
26. I go over the work I've done to check my reasoning and see that it makes sense.	☐	☐	☐	☐	☐
27. In making sense of new ideas, I often relate them to practical or real-life contexts.	☐	☐	☐	☐	☐
28. Whatever I'm working on, I generally push myself to make a good job of it.	☐	☐	☐	☐	☐
29. I don't think through topics for myself, I just rely on what we're taught.	☐	☐	☐	☐	☐
30. When I find something boring, I can usually force myself to keep focused.	☐	☐	☐	☐	☐
31. I tend to just learn things without thinking about the best way to work.	☐	☐	☐	☐	☐
32. I work steadily during the course, rather than just leaving things until the last minute.	☐	☐	☐	☐	☐
33. When I'm reading for a course, I try to find out for myself exactly what the author means.	☐	☐	☐	☐	☐
34. I try to find better ways of tracking down relevant information in my subject.	☐	☐	☐	☐	☐
35. I look at evidence carefully to reach my own conclusion about what I'm studying.	☐	☐	☐	☐	☐
36. I pay careful attention to any advice or feedback I'm given, and try to improve my understanding.	☐	☐	☐	☐	☐

Finally, how well do you think you're doing in this subject area, based on your performance and comments you have received on your work? *Please try to rate yourself **objectively**, based on the grades you have been obtaining.*

very well	well	quite well	about average	not so well		rather badly	
9	8	7	6	5	4	3	2	1
☐	☐	☐	☐	☐	☐	☐	☐	☐

In case we would like to talk to you or send you an email about the project, would you be prepared to give us contact details?

e-mail address .... mobile/tel. no. ....

Have you answered every question?   Please check.

We are very grateful to you for spending time completing this questionnaire.

Economic and Social Research Council
Teaching and Learning Research Programme

Enhancing Teaching-Learning Environments
in Undergraduate Courses

Experiences of Teaching & Learning Questionnaire

▲ ▲

Introduction to the Project

The ESRC Teaching and Learning Research Programme is a nationwide initiative designed to provide a more effective research base to help staff to enhance the teaching they provide for students. Our project is the only one at university level, and we are investigating how students learn with differing kinds of teaching and support. We are looking at students' experiences in five contrasting subject areas in some 30 course settings across Britain. This is the last questionnaire that we are asking you to complete and it brings together your approaches to studying with your experiences of teaching and learning in this particular course unit or module.

Our overall findings (but none of your individual answers) will be fed back to staff to allow them to develop this course unit further. We are grateful for your involvement in this project. If you are interested in the progress of our work, our web site is http://www.ed.ac.uk/etl

Data Protection Act

If you have not already done this, please complete the following declaration. If you have, start with the Background Information section.

In accordance with the Data Protection Act, we have to ask you to sign the following declaration. You can be quite sure that all the information we collect will be used only for the purposes of research and kept confidential to the research team itself: it will not be released to anybody else.

I agree to allow the university to provide the research team with my name, contact details, grades and other information about my course of study. I also agree that this information, and the data collected from me, may be held and processed by the team for the purposes of research.

Sign _____ Date [D][D][M][M][Y][Y]

Background Information

Print name _____

Institution _____

Overall programme of study _____

This course unit or module _____

Identity number [ ][ ][ ][ ][ ][ ][ ][ ][ ]
Please complete from the right, e.g. [ ][ ][1][2][3][4][5][6][7]

Age [ ]   Year of study [ ]

Male [ ]   Female [ ]

FOR OFFICE USE [ ][ ][ ][ ][ ][ ][ ][ ][ ]

1 Approaches to learning and studying ▲

You may have already filled out a longer questionnaire about your *general* approaches to studying, but this time we want you to relate your answers directly to **this particular course unit or module**. Please give your immediate reaction to **every** comment, indicating how you really have been studying.

Put a cross in the box to indicate how strongly you agree with **each** of the following statements.

✓ = *agree* ✓? = *agree somewhat* ✗? = *disagree somewhat* ✗ = *disagree*

Try not to use ?? = *unsure* unless you really have to, or if it cannot apply to you or your course unit.

	✓	✓?	??	✗?	✗
1. I've often had trouble in making sense of the things I have to remember.	☐	☐	☐	☐	☐
2. I've been over the work I've done to check my reasoning and see that it makes sense.	☐	☐	☐	☐	☐
3. I have usually set out to understand for myself the meaning of what we had to learn.	☐	☐	☐	☐	☐
4. I have generally put a lot of effort into my studying.	☐	☐	☐	☐	☐
5. Much of what I've learned seems no more than lots of unrelated bits and pieces in my mind.	☐	☐	☐	☐	☐
6. In making sense of new ideas, I have often related them to practical or real life contexts.	☐	☐	☐	☐	☐
7. On the whole, I've been quite systematic and organised in my studying.	☐	☐	☐	☐	☐
8. Ideas I've come across in my academic reading often set me off on long chains of thought.	☐	☐	☐	☐	☐
9. I've looked at evidence carefully to reach my own conclusion about what I'm studying.	☐	☐	☐	☐	☐
10. When I've been communicating ideas, I've thought over how well I've got my points across.	☐	☐	☐	☐	☐
11. I've organised my study time carefully to make the best use of it.	☐	☐	☐	☐	☐
12. It has been important for me to follow the argument, or to see the reasons behind things.	☐	☐	☐	☐	☐
13. I've tended to take what we've been taught at face value without questioning it much.	☐	☐	☐	☐	☐
14. I've tried to find better ways of tracking down relevant information in this subject.	☐	☐	☐	☐	☐
15. Concentration has not usually been a problem for me, unless I've been really tired.	☐	☐	☐	☐	☐
16. In reading for this course unit, I've tried to find out for myself exactly what the author means.	☐	☐	☐	☐	☐
17. I've just been going through the motions of studying without seeing where I'm going.	☐	☐	☐	☐	☐
18. If I've not understood things well enough when studying, I've tried a different approach.	☐	☐	☐	☐	☐

2 Experiences of teaching and learning ▲

We would also like to know about your experiences of teaching and learning in **this particular course unit or module**. Please rate every comment, using the same scale as in the previous section, remembering not to use ?? = *unsure* unless you really have to, or if it cannnot apply to your course unit. Please give a rating for **every** comment.

	✓	✓?	??	✗?	✗
Organisation and structure					
1. It was clear to me what I was supposed to learn in this course unit.	☐	☐	☐	☐	☐
2. The topics seemed to follow each other in a way that made sense to me.	☐	☐	☐	☐	☐
3. We were given a good deal of choice over how we went about learning.	☐	☐	☐	☐	☐
4. The course unit was well organised and ran smoothly.	☐	☐	☐	☐	☐
5. We were allowed some choice over what aspects of the subject to concentrate on.	☐	☐	☐	☐	☐
6. What we were taught seemed to match what we were supposed to learn.	☐	☐	☐	☐	☐

	✓	✓?	??	✗?	✗

Teaching and learning

7. We were encouraged to look for links between this unit and others. ☐ ☐ ☐ ☐ ☐

8. I can imagine myself working in the subject area covered by this unit. ☐ ☐ ☐ ☐ ☐

9. The handouts and other materials we were given helped me to understand the unit. ☐ ☐ ☐ ☐ ☐

10. On this unit, I was prompted to think about how well I was learning and how I might improve. ☐ ☐ ☐ ☐ ☐

11. I could see the relevance of most of what we were taught in this unit. ☐ ☐ ☐ ☐ ☐

12. We weren't just given information; staff explained how knowledge is developed in this subject. ☐ ☐ ☐ ☐ ☐

13. The teaching encouraged me to rethink my understanding of some aspects of the subject. ☐ ☐ ☐ ☐ ☐

14. The different types of teaching (lectures, tutorials, labs, etc.) supported each other well. ☐ ☐ ☐ ☐ ☐

15. Plenty of examples and illustrations were given to help us to grasp things better. ☐ ☐ ☐ ☐ ☐

16. This unit has given me a sense of what goes on 'behind the scenes' in this subject area. ☐ ☐ ☐ ☐ ☐

17. The teaching in this unit helped me to think about the evidence underpinning different views. ☐ ☐ ☐ ☐ ☐

18. How this unit was taught fitted in well with what we were supposed to learn. ☐ ☐ ☐ ☐ ☐

19. This unit encouraged me to relate what I learned to issues in the wider world. ☐ ☐ ☐ ☐ ☐

20. The web pages provided by staff helped me to understand the topics better. ☐ ☐ ☐ ☐ ☐

Students and teachers

21. Students supported each other and tried to give help when it was needed. ☐ ☐ ☐ ☐ ☐

22. I found most of what I learned in this course unit really interesting. ☐ ☐ ☐ ☐ ☐

23. Staff tried to share their enthusiasm about the subject with us. ☐ ☐ ☐ ☐ ☐

24. Talking with other students helped me to develop my understanding. ☐ ☐ ☐ ☐ ☐

25. Staff were patient in explaining things which seemed difficult to grasp. ☐ ☐ ☐ ☐ ☐

26. I enjoyed being involved in this course unit. ☐ ☐ ☐ ☐ ☐

27. Students' views were valued in this course unit. ☐ ☐ ☐ ☐ ☐

28. Staff helped us to see how you are supposed to think and reach conclusions in this subject. ☐ ☐ ☐ ☐ ☐

29. I found I could generally work comfortably with other students on this unit. ☐ ☐ ☐ ☐ ☐

30. This course unit provided plenty of opportunities for me to discuss important ideas. ☐ ☐ ☐ ☐ ☐

Assessments and other set work

31. It was clear to me what was expected in the assessed work for this course unit. ☐ ☐ ☐ ☐ ☐

32. I was encouraged to think about how best to tackle the set work. ☐ ☐ ☐ ☐ ☐

33. I could see how the set work fitted in with what we were supposed to learn. ☐ ☐ ☐ ☐ ☐

34. You had really to understand the subject to get good marks in this course unit. ☐ ☐ ☐ ☐ ☐

35. The feedback given on my work helped me to improve my ways of learning and studying. ☐ ☐ ☐ ☐ ☐

36. Doing the set work helped me to think about how evidence is used in this subject. ☐ ☐ ☐ ☐ ☐

37. Staff gave me the support I needed to help me complete the set work for this course unit. ☐ ☐ ☐ ☐ ☐

38. To do well in this course unit, you had to think critically about the topics. ☐ ☐ ☐ ☐ ☐

	✓	✓?	??	✗?	✗

39. The set work helped me to make connections to my existing knowledge or experience. ☐ ☐ ☐ ☐ ☐

40. The feedback given on my set work helped to clarify things I hadn't fully understood. ☐ ☐ ☐ ☐ ☐

PLEASE TURN OVER

3 Demands made by the course unit ▲

In this section, please tell us how easy or difficult you found different aspects of **this course unit**.

✓ = *very easy*   ✓? = *fairly easy*   ?? = *unsure/not applicable*   ✗? = *fairly difficult*   ✗ = *very difficult*

	✓	✓?	??	✗?	✗
a. What I was expected to know to begin with.	☐	☐	☐	☐	☐
b. The rate at which new material was introduced.	☐	☐	☐	☐	☐
c. The ideas and problems I had to deal with.	☐	☐	☐	☐	☐
d. The skills or technical procedures needed in this subject.	☐	☐	☐	☐	☐
e. The amount of work I was expected to do.	☐	☐	☐	☐	☐
f. Working with other students.	☐	☐	☐	☐	☐
g. Organising and being responsible for my own learning.	☐	☐	☐	☐	☐
h. Communicating knowledge and ideas effectively.	☐	☐	☐	☐	☐
i. Tracking down information for myself.	☐	☐	☐	☐	☐
j. Information technology/computing skills (e.g. WWW, email, word processing).	☐	☐	☐	☐	☐

Other demands (please specify): ....

4 What you learned from this course unit ▲

Now we would like to know how much you feel you have gained from studying **this course unit**.

✓ = *a lot*   ✓? = *quite a lot*   ?? = *unsure/not applicable*   ✗? = *not much*   ✗ = *very little*

	✓	✓?	??	✗?	✗
a. Knowledge and understanding about the topics covered.	☐	☐	☐	☐	☐
b. Ability to think about ideas or to solve problems.	☐	☐	☐	☐	☐
c. Skills or technical procedures specific to the subject.	☐	☐	☐	☐	☐
d. Ability to work with other students.	☐	☐	☐	☐	☐
e. Organising and being responsible for my own learning.	☐	☐	☐	☐	☐
f. Ability to communicate knowledge and ideas effectively.	☐	☐	☐	☐	☐
g. Ability to track down information in this subject area.	☐	☐	☐	☐	☐
h. Information technology/computing skills (e.g. WWW, email, word processing).	☐	☐	☐	☐	☐

Other gains (please specify): ....

Finally, how well do you think you're doing in this course unit as a whole? Please try to rate yourself **objectively**, based on any marks, grades or comments you have been given.

very well	well	quite well	about average	not so well		rather badly
9	8	7	6	5	4	3	2	1
☐	☐	☐	☐	☐	☐	☐	☐	☐

Please check back to make sure that you have answered every question.

Thank you very much for spending time completing this questionnaire: it is much appreciated.