

ETL Project Progress Report

1 January 2002 to 31 December 2002

Institutions:	University of Edinburgh in collaboration with the Universities of Coventry and Durham	
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Original Aims

Overall our aim is to:

- Explore ways of strengthening undergraduate teaching-learning environments so as to improve student engagement and high quality learning.

Specifically the aims are to:

- Extend the range of disciplinary perspectives on research into teaching and learning in higher education by relating them more directly to the professional knowledge and experience of academic staff in five contrasting subject areas;
- Work collaboratively with departmental partners to provide a firm evidential and theoretical basis for suggesting specific collaborative initiatives;
- Develop instruments designed to help course teams evaluate the effectiveness of their teaching-learning environments in encouraging high level learning outcomes;
- Construct case studies from the five subject areas to illustrate how evidence and conceptual frameworks can be used to evaluate and strengthen teaching and learning.

Research Design

The subject areas selected were biological sciences, economics, electronic engineering, history, and media and communications, and within these subject areas up to five departments were to be chosen. Within the departments selected, course units at contrasting levels would be identified as the focus for the study. In the first year of collaboration with the departments, a detailed description of the teaching-learning environment provided within each course unit would be constructed from documentary sources and interviews with academic staff. During that year, students would complete two questionnaires, one about their general approaches to studying, and the other about their specific approaches, their experiences of the teaching-learning environment, and what they felt they had

achieved. Groups of students would also be interviewed to provide additional data on those experiences. Analyses of these data would be reported to the course team as the evidential basis for discussion of possible collaborative initiatives. In the second year of collaboration, equivalent data would be collected and compared with the results from the previous year group, but with a specific focus on the experience of the collaborative initiative.

Practical Changes to Original Award

There were a number of staff changes during 2002. Dr Nicola Reimann joined the project in February. From 1 October 2002, Professor Entwistle formally retired, but was re-engaged by the University of Edinburgh to work two days a week on the project. Dr Velda McCune resigned as Research Fellow in October to take up a more permanent post at the University of Edinburgh, but one day a week of her time in her new position is formally committed to the project. Her post as Research Fellow has been taken by Dr Jennifer Nisbet, who joined the project in November. Professor Liz Beaty left the project in October to take up a senior executive position with HEFCE, and Dr Glynis Cousin left in December to take up a position at Warwick University. Mr Adrian Bromage joined the project in November as a part-time Research Fellow.

In consequence of these developments, and following consultation with the TLRP directorate and discussions with colleagues at Coventry University, it has been agreed that it would not be feasible to continue with data-collection and analysis in media and communication studies beyond the 2002-03 session. A report is being drafted by Dr. Cousin which will present the results of a review of the literature and the findings of the empirical work carried out in Phases 1 and 2. This report will be discussed in draft form with the relevant departmental partners prior to wider circulation as an ETL Occasional Paper. The findings will also form the basis of a dissemination seminar in Coventry in May 2003.

Report on Research Progress

Literature review

The initial general reviews on student learning and learning environments were completed during the first year of the project, but continue to be updated. In the second year, the work has moved on to teaching and learning in our five subject areas. So far, a complete review has been carried out for biological sciences and a summary has been prepared. Substantial material has also been collected relating to economics and media and communications, with publications being prepared for initial dissemination through our series of Occasional Reports. Material is still being collected for the other two subject areas where less time has been available. In all five subject areas, the available literature has been scattered across a very wide range of sources, and it has become clear that drawing it together will be of considerable benefit to the subject communities as well as providing a necessary underpinning to our empirical work.

Completion of reports on Phase 1 of the project

The analysis of TQA and QAA reports within Phase 1 of the project was reported previously. Since then a full report has been prepared and will appear in our Occasional Reports series in early 2003. A report on the telephone interviews in biological sciences, also incorporating the review, is now on our web-site as Occasional Report No. 2. A draft report for media and communications is being circulated to the participating departments for comment and revision prior to wider circulation. Comparable reports are in different stages of preparation for the other subject areas.

Visits by international consultants and subject advisers

We have again had useful visits from our international consultants, John Biggs and David Perkins, bringing us up to date with their current thinking. They have reviewed our initial reports and made valuable comments on how best to move forward.

Ongoing development of conceptual frameworks

Some initial work on general conceptual frameworks had been carried out last year. Last year we decided to clarify the meaning of high quality learning outcomes within the different subject areas by

introducing the notion of Ways of Thinking and Practising in the Subject (WTPs). The interviews with staff in the pilot departments, and in other departments this session, has been steadily building up a clearer picture of the distinctive learning and teaching challenges in the five subject areas and the conceptual perspectives most appropriate to each.

We have also been actively exploring the applicability and utility of constructive alignment, one of our original guiding concepts. Work in the pilot phase (see Occasional Report no. 2) has been fruitful both in enlarging the components in Biggs' model and in beginning to trace the nature of the interrelationships between components. Two particular challenges will be developing the application of the model in ways that are attuned to the distinctive features of large first-year courses with large course teams and highly differentiated teaching and assessment roles, and also take appropriate account of contextual factors which can facilitate or inhibit certain aspects of alignment.

We are also working with three pedagogical concepts that are helping to inform our discussions with staff and students. These are troublesome knowledge (a term introduced to us by David Perkins), threshold concepts (originated by Erik Meyer within the project), and delayed understanding (introduced by Max Scheja, a Swedish colleague who spent the previous session working at Edinburgh). A threshold concept is one, like 'opportunity cost' in Economics, which opens up a new and previously inaccessible way of thinking about an area of the subject. Delayed understanding has been noted in electronic engineering, where students comment that understanding cannot come immediately; it has to be delayed until a section of the course has been completed. Troublesome knowledge is proving useful in pinpointing themes or areas within a subject area which students have difficulties in grasping securely.

A conceptual framework describing teaching-learning environments was developed last year, and has informed the development of the questionnaire looking at students' experiences of such environments. The item factor analysis of that questionnaire with our pilot sample suggested five or six factors which reduced the focus even further, but interviews with students have expanded that framework again. The most recent version of the conceptual framework has been included as Appendix 1.

Pilot phase collaborative work with departments

As noted in last year's report, it had not been feasible to negotiate agreements with as many departments as had originally been envisaged, due to the delayed start of the project and other difficulties. Nevertheless, we had begun work in two or three departments in each of the five subject areas. This proved to be in the nature of a pilot study, since the logistics and practicalities of data collection were, in the event, more demanding than we had anticipated (see 'Difficulties encountered' below).

As far as analyses are concerned, the results from the initial analyses of complete questionnaire data from 216 students have been incorporated into our Occasional Report 1. Each of the participating departments has also been provided with a detailed report of the questionnaire findings to date, together with a summary of preliminary findings from any individual or group interviews with students. These preliminary reports have fed into discussions of possible collaborative initiatives in spring and early summer 2003, when the modules or course units will next be run.

Main phase collaborative work with departments

In the current session, work has been continuing in one course unit in biological sciences, one in economics, two in media and communication studies and three course units in history. At the same time, new agreements have been reached with departments to allow work to start in five course units in biological sciences, five in economics, six in electronic engineering, two in media and communication studies and three in history. The aim is to continue building up the evidential base in these latter course settings, while evaluating the collaborative initiatives in the initial round of course settings surveyed. Where enrolment figures are given for units running in spring and summer 2003, these are estimated rather than actual numbers of students.

Steps have also been taken to optimise take-up rates for questionnaires and interviews, in the light of the project team's experiences in the first half of 2002. These include, as appropriate:

- introducing students both to the work of the project and to key contacts in the project team;

- being present in lectures and labs to encourage completion of questionnaires and sign students up for interviews (and, where appropriate, accompanying this with email messages);
- scheduling interviews so that, whenever feasible, they take place immediately prior to, or following, a timetabled class, rather than at a later date.

Collaboration with a European research group

The project was asked by the University of Leuven to become part of a European research network sharing ideas on Powerful Learning Environments. The network meets annually at a workshop and is currently producing a book based on the proceedings of the first workshop. Although the focus of the network is mainly on the school level, the variety of conceptualisation encountered is potentially valuable.

Difficulties encountered

The TLRP was set up with an emphasis on collaborative research with users, but in higher education, at least, this was a largely untried approach. The project has thus had to develop ways of working collaboratively and constructively with its departmental partners, and these have necessitated repeated visits, especially where course teams are large or restructuring has been under way. Although this has proved very effective in some departments, in others the pressures under which staff currently work have constrained what has been feasible. Initial arrangements for collecting questionnaire data did not always work well, due to unexpected changes in timetable or poor attendance at lectures towards the end of a module. It has also become clear that students are now much less willing than hitherto to give up their time to discuss their experiences with the researchers, with the consequence that substantial investments of time and effort have been necessary to obtain satisfactory data in some cases.

Changes introduced

The time involved in setting up collaborative arrangements and working with colleagues during last session made it evident that it would be impractical to achieve satisfactory levels of student and staff involvement in the number of settings originally envisaged. We therefore negotiated a reduced and more manageable figure with the TLRP directorate. We felt that, given the resources and time available to us and the pressures on our departmental partners, we could work most effectively in a maximum of six course settings in each subject area.

Updated schedule

We are in the process of re-appraising our schedule of work over the lifetime of the project. Our planned programme of activities with departmental partners remains on target, along with our firm commitment to continue to report our ongoing work and emerging findings to our various target users in the practitioner, policy-making and research communities, by means of conference and seminar presentations, occasional reports and journal and newsletter articles.

However, the successive cycles of data gathering, data analysis and reporting-back to subject departments – the timing of which is necessarily locked into institutions' teaching and examination timetables – will not be completed in full until late October 2004, leaving only two calendar months before the funded work of the project ceases at the end of December of that year. There will consequently be very little time in which to complete the cross-subject and cross-institutional analyses and disseminate the resulting findings.

Highlights of the Research

In spite of the difficulties noted above, the project has made good progress in developing an understanding of the contrasting ways of thinking and practising in the different subject areas, and how that leads to varying teaching and learning arrangements. Given the previous lack of systematic research into this crucial aspect of university education, we believe that we are already offering new insights to other researchers in the field. Moreover, the discussions we are having with colleagues in departments suggest that we shall also be able to present our findings in a way which brings to practitioners research insights that will complement and extend their understanding of teaching and learning in their discipline.

Our thinking about the conceptualisation of teaching and learning in earlier research has also been changing in productive ways. Specifically, we have introduced a number of concepts (discussed earlier) that we believe will clarify thinking about teaching and learning in higher education, while also more fruitfully reflecting and encapsulating subject area differences. Our work with collaborating colleagues is already enabling us to see how to adjust the theoretical ideas in ways which better coincide with current realities.

There are several other perspectives that have also been influencing teaching and learning at university level. These include educational psychology, sociology, and curriculum and staff development, as well as quality assurance procedures and management practices, each focusing on rather different aspects of the university context, with contrasting underlying belief systems. The range of experience within the research team has enabled these differing perspectives gradually to coalesce, with what we believe will be important consequences for research in the area.

Key Findings

The following key findings are anticipated:

- the development of improved frameworks for understanding and enhancing teaching-learning processes which are both appropriately subject-sensitive and securely grounded in the exigencies and practicalities of contemporary higher education
- within these richer frameworks, refinement and application of the constructs of ways of thinking and practising in the subject, threshold concepts, and constructive alignment
- a better understanding of the design and effective implementation of evidence-based strategies for enhancing the quality of learning

Warrant

It is anticipated that claims for the plausibility and utility of the key findings will be based on: conceptual coherence and empirical substantiation; grounding in the available literature (both generic and discipline-specific); robustness of the research design (incl. size and spread of samples and settings, triangulation of methods and results, ecological validity); and endorsement of the congruence, salience and applicability of the findings by departmental partners, subject practitioners and other user-groups.

Progress and Strategies Towards Programme Aims

a. enhancing outcomes for learners

Given the nature of our research design, evidence of this kind will only begin to emerge from the collaborative initiatives agreed with departmental partners towards the end of the present academic year (2002/03), but mainly in 2003/04.

b. developing synergies

Early indications of the value of a combination of quantitative and qualitative approaches to data-gathering and analysis have been quite promising. We have also been exploring the potential of drawing on a more varied range of conceptual perspectives and insights than originally envisaged (incl. cross-disciplinary ones), in the interests of goodness-of-fit with each subject area, rather than pursuing an inappropriately high degree of cross-subject uniformity.

Another modest but significant step towards synergy has been to make the two questionnaires we have developed freely available on our project website, together with some general guidance on their use. While collaboration in their deployment elsewhere would be impractical at this stage, we are asking those who make use of either questionnaire to keep us informed about their findings.

More broadly, we have also begun to pursue synergy with the other two post-compulsory Phase II projects by convening joint activities (an EdD Colloquium in Edinburgh in September 2002, and the TLRP symposium at the SRHE Conference in Glasgow in December 2002).

c. *enhancing research capacity*

In addition to involvement of various kinds in the Cardiff team's RCB activities, our already quite extensive contribution to conferences and seminars on educational research and development (see above) has, we believe, served to raise awareness and enlarge understanding of issues relating to research design and of the desirability of a more systematic anchorage in the relevant research literature. Following an input to a LTSN (Learning and Teaching Support Network) Conference on Using Pedagogic Research, an introductory guide to the assessment literature will shortly be placed on the LTSN Generic Centre's website, and the possibility was raised, in the TLRP symposium at the SRHE 2002 Conference, of mounting intensive research-focused seminars on pedagogical themes.

d. *transforming research knowledge about teaching and learning, and promoting its application*

We expect to make a growing, and in due course substantial, contribution on this theme as our findings begin to emerge. (On 'promoting its application', see also the preceding paragraph in c. above).

e. *maximising impact and user engagement*

As is indicated in the appended lists of publications and conference and seminar presentations by members of the project team, we are firmly committed to discussing and disseminating the ongoing work of the project with an appropriately wide range of user groups, and these activities will undoubtedly further expand over the next two years. Similarly, our project website, which already contains downloadable reports and research instruments as well as other information about the project, will expand very considerably.

A growing feature of that work will be events for and in partnership with subject-specific user groups. Two such events already planned are the dissemination seminar on Media and Communication Studies in Coventry in May 2003, and a presentation to the LTSN Annual Conference for Developing Learning and Teaching in History in Lancaster in April 2003. However, the main thrust of these activities will necessarily follow the emergence of findings from our main phase of main data-gathering (i.e. from late autumn 2003 onwards). Each of the project's five focal subject areas are the responsibility of two or three members of the project team, who have also been establishing and maintaining contacts with the matching five LTSN subject centres and other relevant subject bodies. We expect to work closely with these networks in communicating and discussing our findings, and we shall also make maximum use of opportunities to involve our departmental partners, with their express agreement.

Publications

- Beaty, E. and Land, R. (in press) The ETL Project – identifying high quality learning in specific disciplinary contexts. *Research and Development in Higher Education*, Proceedings of the Higher Education Research and Development Society of Australasia Conference, Vol. 25.
- Entwistle, N., McCune, V. and Hounsell, J. (in press) Investigating ways of enhancing university teaching-learning environments: measuring students' approaches to studying and perceptions of teaching. In: De Corte, E. Verschaffel, L., Entwistle, N. J., & van Merriënboer, J. (Eds.) *Unravelling Basic Components and Dimensions of Powerful Learning Environments*. Oxford: Elsevier Science.
- Entwistle, N., McCune, V. and Hounsell, J. (2002) *Approaches to Studying and Perceptions of University Teaching-Learning Environments: Concepts, Measures and Preliminary Findings*. ETL Project Occasional Report, No. 1. <http://www.ed.ac.uk/etl/publications.html>
- Entwistle, N. J and McCune, V. S. (in press) The conceptual bases of study strategy inventories in higher education. *Educational Psychology Review*.
- Hounsell, D. and McCune, V. (2002) *Teaching-Learning Environments in Undergraduate Biology: Initial Perspectives and Findings*. ETL Project Occasional Report, No. 2. <http://www.ed.ac.uk/etl/publications.html>
- McCune, V. and Reimann, N. (in press) The Enhancing Teaching-Learning Environments in Undergraduate Courses Project: early findings. In: Rust, C. (ed.) *Improving Student Learning: Theory and Practice – 10 Years On*. Proceedings of the 10th Improving Student Learning Conference. Oxford: OCLSD.

- McCune, V. (in press) The Enhancing Teaching-Learning Environments in Undergraduate Courses (ETL) Project: implications for educational developers *Educational Development*
- Meyer, J.H.F. and Land, L.R. (in press) Threshold concepts and troublesome knowledge. In: Rust, C. (ed.) *Improving Student Learning: Theory and Practice – 10 Years On*. Proceedings of the 10th Improving Student Learning Conference. Oxford: OCLSD.

Presentations

- Entwistle, N. Enhancing Teaching-Learning Environments to Encourage Deep Learning. Stockholm, 2002.
- Entwistle, N. Key Developments in the ESRC/TLRP Project on Enhancing Teaching-Learning Environments in Undergraduate Courses. TLRP Conference, Huntingdon, September 2002
- Entwistle, N. Promoting Deep Learning Through Teaching and Assessment: Conceptual Frameworks and Educational Contexts. TLRP Conference, Leicester, November 2000
- Hounsell, D. Enhancing Teaching-Learning Environments in Undergraduate Courses. Society for Research in Higher Education Conference, Glasgow, December 2002.
- Hounsell, D. Undergraduate Courses as Teaching-Learning Environments. Invited Lecture, University of Växjö, Sweden, November 2002.
- Hounsell, D. Curriculum Alignment in Contemporary UK Higher Education: A Research Perspective. Constructive Alignment in Action: An Imaginative Curriculum Symposium. Learning and Teaching Support Network, London, November 2002
- Hounsell, D. Using Research on Assessment in Course Design and Delivery. Learning and Teaching Support Network Generic Centre Conference on Using Pedagogic Research, Birmingham, October 2002.

Appendix 1 Conceptual framework indicating influences on student learning

