

ETL Project Progress Report

1 January 2004 to 31 December 2004

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

Our overall goal has been to:

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

Our more specific aims have been 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 and Methods

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 (LSQ), and the other about their specific approaches, their experiences of the teaching-learning environment, and what they felt they had achieved (ETLQ). 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. From the outset of the project, there would be a commitment to communication and discussion of the research approach and emerging findings with an appropriately wide range of key end-users.

Practical Changes to Original Award

Ms. Judith Litjens was appointed to the post of Research Associate at the Edinburgh Centre in October 2004. Dr. Nicola Reimann moved from a 0.8 f.t. contract to a 0.4 f.t. contract in October 2004 following her appointment to a part-time position at the Open University in Newcastle. Dr. Jennifer Nisbet's fixed-term appointment as Research Fellow came to an end in December 2004.

Report on Research Progress

Contribution to the Programme Goal

The ETL Project's principal contribution to the core goal of the TLRP Programme is in enhancing outcomes for undergraduate learners in a range of higher education subject settings and institutional contexts. The nature of this contribution is evident in all four of the present major strands of ETL work, as follows.

- *High-quality undergraduate learning.* In the first of these strands, a cornerstone of the research design has been the well-established and highly influential research findings on deep and surface approaches to studying and linked differences in outcomes and conceptions of learning. But the project has sought not only to build on this conceptualisation of learning and studying but also to venture beyond it. To this end, the construct of *ways of thinking and practising in a subject area* (WTP) has been developed as a means of capturing key features of high-quality learning outcomes in contemporary undergraduate higher education, while also exploring potential hindrances to the achievement of these learning outcomes in the form of *threshold concepts* and *delayed understanding*. Already our interactions with end-users in a variety of subject areas and institutions are beginning to suggest that reconceptualising degree outcomes and processes in this way can be of great benefit to curriculum design and course development, particularly in looking at outcomes on or near graduation and progression towards these over the course of a three- or four-year degree programme. And inevitably, it will have implications in turn for quality assurance, where the deep/surface distinction has been a recurring motif.
- *Teaching-learning environments in undergraduate courses.* In the second strand, the project has sought to gain a much better understanding of undergraduate courses as complex and dynamic teaching-learning environments. Starting from Biggs' model of 'constructive alignment', the project has gone on to examine the extent to which key elements within these environments are *congruent* not only with high-quality learning outcomes and processes (notably WTP), but also with students' backgrounds, experiences and aspirations, as well as with the requirements and conventions of the discipline or subject area concerned. In terms of the TLRP goal of enhancing learner outcomes, this empirically underpinned recasting of Biggs' work opens up fruitful perspectives not just for course design but even more crucially, for course organisation and management. It thus pinpoints key elements in teaching-learning environments where greater congruence would be beneficial – in strategies to engage with student diversity, for instance, or the provision of formative feedback to students. At the same time, it draws attention to the need for more alert monitoring of the implementation of course designs, particularly through addressing the perceptions and experiences of students in an age of mass higher education.
- *Evidence-informed enhancement.* The third strand is the demonstrable impact of the evidence-informed initiatives to enhance learning and teaching which the project has been pursuing in collaboration with its partner departments. Despite the relatively short timescales and a range of confounding factors in particular course units, some quite persuasive evidence of impact is beginning to emerge in a small number of cases. This has direct implications for the principal

TLRP goal. A rich picture is also unfolding of the challenges of evidence-informed change, including the effects of other competing priorities (e.g. implementing significant changes in local or national policies and procedures), the extent to which the 'inner logic' of a projected initiative may be in tension with departmental or institutional teaching cultures and assessment regimes, and the limited opportunities which may be open to already hard-pressed staff to see a given enhancement initiative through to its conclusion.

- *The subject dimension.* A fourth strand is the influence of the discipline or subject area. This strand is closely interwoven into the other three: inevitably, it is a major determinant of the characteristic *ways of thinking and practising* pursued in a given subject area, but its influence appears to be much wider. Characteristic features of, and challenges within, teaching-learning environments seemed to be shaped by subject exigencies and conventions, which could also impinge on the nature and direction of the evidence-informed initiatives under consideration in particular course settings. The relevance of this dimension to the core TLRP goal may be indirect, but its significance should not in consequence be undervalued. On the one hand, it has important implications for the initial and continuing professional development of university teachers, as for the literature on which such programmes rely, since these have traditionally been predominantly generic rather than subject-specific in orientation. On the other, it cautions against too ready a tendency in the past (amongst researchers and amongst those who making use of research to guide practice) to extrapolate findings – and indeed concepts – from one discipline to another.

Developments since the Last Progress Report

In the first half of 2004, a prime objective of the project was to complete the gathering of the bulk of the data from the eleven course settings where the remaining collaborative initiatives were being undertaken. An overall total of 6488 student questionnaires (3778 LSQ and 2710 ETLQ) has been collected. Furthermore, 183 group interviews have been conducted with 668 students, and 90 staff have been formally interviewed. Assessment grades have also subsequently been obtained from twelve departments. Viewed as a whole, this represents – to the best of our knowledge – the most substantial corpus of research data on undergraduate students and staff collected by a single research project in the last two decades.

A second objective, and an ongoing one, has been the analysis of these data. In the first instance, the concern has been to collate and review the findings for a given course setting, in an effort to identify indices of the impact of the collaborative initiative undertaken. This in turn meant checking the comparability of the two successive cohorts of students as well as comparing the quantitative and qualitative data for the years prior to the collaborative initiative and following its introduction. The findings can then be reported back to, and discussed with, the course team concerned, through the medium of a confidential written report. Typically, these post-initiative reports have been somewhat shorter than the baseline reports in the preceding year. While the former were often quite broad in the range of themes and issues arising from the data which had been examined, attention in the latter has generally been concentrated on reviewing evidence likely to have a bearing on the impact of the collaborative initiative in the course setting concerned.

Many of these course-specific analyses have now been completed; others are in their final stages, and close to completion. The picture – albeit one that is not yet complete – which has emerged thus far, perhaps not surprisingly, appears to be a mixed one as far as evidence of impact on the quality of learning is concerned. The four Bioscience course settings where collaborative initiatives were undertaken and monitored can serve as an illustration, particularly since the enhanced provision of guidance and feedback to students was a theme which featured, to varying degrees, across all four settings. In one final-year course unit (B1L), there has been little discernible evidence of impact. In two first-year course units (B2F and B3F), there was evidence of a favourable impact in the interviews with the students, but not in the ETLQ questionnaire data. In the remaining, final-year course unit (B3L), significant improvements in the questionnaire scores, in combination with comments made by the students in the interviews, have provided compelling evidence of impact. The additional guidance given to the students appeared to have helped them to understand more clearly what had been required of them, while enhanced feedback, from students and from staff, was perceived by the students to have enabled them to develop their presentation skills.

Alongside these course-by-course analyses, there has been work at both a subject-wide and cross-subject level. In the subject-wide analyses, the focus has been on drawing together the findings from across the first- and final-year course units, identifying key similarities and differences while further refining the analyses where appropriate and productive. These analyses are feeding into four substantial 'subject overview reports', each which will seek to synthesise and review findings

At the cross-subject level, factor analysis has been used to review the robustness of the sub-scales which underpin the two questionnaires and also to explore the relationships between the scales. Item factor analysis has been used to shorten the scales derived from the questionnaires, so as to improve their reliability and make them more usable by teaching staff. A shorter version of the ETLQ is being produced in a form which would allow course teams, in future, to monitor the perceptions and experiences of their students. Factor analysis of the scales has shown a relationships between positive perceptions of the teaching-learning environment and *increases* in deep and *decreases* in surface approaches among the students, and cluster analysis is currently being used to explore these relationships further.

Complementing the aggregate quantitative analyses, efforts continue to refine the analytical categories which have evolved in the collation and interpretation of the interview data. At the cross-subject level, the datasets and the categories generated in analysing them inescapably reflect the grounded particularities of subjects, institutional settings and levels of study as well as project-wide analytical constructs. A difficult balance has therefore had to be struck between capturing both generic and discipline-specific features of high-quality undergraduate learning and of teaching-learning environments. Approaching the former through the lens of congruence, and the latter from the standpoint of ways of thinking and practising in a subject, have been helpful in sustaining a commonality of perspective while remaining alert to aspects of both learning and teaching-learning environments which are bound up with disciplinary practices and conventions.

Finally, while there have been continuing and vigorous efforts to report the ongoing work of the project through a wide array of formal and informal channels, substantial effort has also been invested in refining and extending plans for outputs in the final stage of the project and beyond the formal period of TLRP funding.

Changes introduced

The only significant change during the last twelve months has been the additional unfunded three-month extension, which has been invaluable in enabling us to both round off the analyses of the quantitative and qualitative data, and to plan and prepare for communicating our findings in a variety of ways.

Highlights of the Research

Given a number of key developments over the last year, singling out just two could be misleading. However, one which might be highlighted has been the potential for fruitful interplay between the questionnaire and the interview data, particularly in striving to make sense of the students' perceptions and experiences of their courses as teaching-learning environments. Thus it was possible in some instances for concerns expressed in interviews be checked out against responses to relevant questionnaire items, and vice versa. Seeking triangulation of findings does, of course, have its frustrations as well as successes, but it does also provide a welcome reminder that analysis of questionnaire data need not be exclusively quantitative, just as analysis of interview data need not be wholly qualitative.

A second highlight would probably be our interaction with our departmental partners in the many course settings which we have surveyed. These have been crucial to us in gaining a necessary grasp of the distinctive nature and exigencies of the subject areas and the day-to-day realities of 'real-world' teaching-learning environments, including the opportunities and constraints which shape possibilities within any given departmental and course setting, and the pressures of other changes and developments. Our research design has also compelled us to develop, hopefully with some success, our capacity to communicate project objectives, observations, and insights to departmental colleagues in accessible ways, and to draw on their collective 'wisdom of practice'.

Key Findings

The key findings emerging from our work have already been reviewed above, and may be succinctly summarised as follows:

- In an age of mass higher education, contemporary undergraduate courses represent complex and dynamic teaching-learning environments. The effectiveness of these environments can be seen as dependent on the extent to which various key elements within them are congruent with high-quality learning goals, with students' backgrounds and aspirations, and with subject requirements.
- Within these environments, students do not only enlarge their knowledge and understanding; they also seem to develop a grasp of the distinctive ways of thinking and practising (e.g. deriving and communicating findings and insights) which are characteristic of a given subject area or discipline.
- Thus while there are features *both* of what students learn *and* of how the courses they pursue are taught and assessed which seem to be common to a range of subject areas, there appear to be equally important features which are particular to a given subject or discipline, but which have generally been undervalued in previous research and published guides to teaching and learning.
- Initiatives which are underpinned by research evidence, carefully devised and well-supported can make a demonstrable impact in enhancing the quality of learning and teaching in undergraduate courses.

Warrant

The justification of our conclusions will come from several sources. As one intention of the programme is to produce 'usable' research findings, the value of our findings must inevitably depend, in part, on the extent to which we are seen to have produced such findings. We shall be able to offer conceptual frameworks and a way of thinking about research evidence for university teachers working in different contexts and under different conditions. And we shall be able to frame these within a recognisable reality, based on our experience during the project, and using a discourse appropriate to the differing subject areas. These now seem to be the essential pre-requisites for helping staff to enhance the teaching-learning environments in undergraduate courses.

Research quality is, however judged mainly by the research community and follows the conventions of 'disciplined enquiry' within a field where even the criteria for judging research quality are deeply contested. We are ensuring that the procedures followed with both quantitative and qualitative analyses conform to current conventions of 'best practice'. The justifications for our specific findings will come from the interplay of our own qualitative and quantitative analyses with the existing literature on teaching and learning in higher education.

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