

ALT Book

From Enthusiasm to Establishment: Ten Years of Learning Technology in Tertiary Education

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Chapter

Experiences of National Projects in Embedding Learning Technology into Institutional Practices in UK Higher Education

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Abstract

Over the last decade, the UK higher education funding councils have funded a staggeringly large number of educational development projects under a range of teaching and learning programmes. Of these, a significant number aimed to develop and implement methods and tools specifically involving learning technologies. However, the sector has witnessed varying degrees of success in the way the innovative approaches explored by project work have been embraced, adopted and embedded. An evaluation of project success factors is therefore valuable across the sector in order to inform decisions about educational innovation in the future: to projects, to institutions and to national programmes and funding bodies.

A study funded by the LTSN Generic Centre was undertaken to draw out lessons learned from a number of national projects that had shown success in embedding new practices into institutional teaching and learning. Projects were funded by the UK higher education funding councils over 1998-2002 and were generic or interdisciplinary, technology-related educational development projects working at institutional and multi-institutional levels. This chapter describes the experiences of the selected projects in institutional embedding, highlights approaches that appear to work well and identifies potential areas where embedding might be enhanced at project, institutional and national levels. It outlines the operational contexts in which educational development work is located and provides a practical framework for planning and organising project activities to take account of these.

Introduction

Higher and further education environments at national and international levels have rapidly evolved over the last decade supporting a shift from regulation to enhancement and an increase in national support for teaching and learning development. The stream of national funding initiatives, programmes and services has been an enviable part of UK educational history. In higher education, key developments are seen in quality assurance and quality enhancement agendas, in funding for national and institutional development work and subject support networks, in the professionalism of teaching and rewards for teaching excellence, and in research and evaluation of education as a scholarly pursuit. Alongside these changes, the staff themselves have increasingly formed associations, networks and accreditation pathways for their own continuing professional development. The Staff and Educational Development Association (SEDA), the Association for

Learning Technology (ALT) and the Universities and Colleges Information Systems Association (UCISA) were all set up in 1993 and the Institute for Learning and Teaching in Higher Education was established in 1999. Further regional and special interest groups, project clusters and subject networks have emerged to facilitate sharing and discussion of specific aspects of practice in learning technology.

It is not surprising that over the last ten years that the learning technology environment has both informed these changes and been influenced by them. The rapid evolution of national programmes and support for teaching and learning development coupled with the emergence of institutional strategies for ICT has driven expansion of a vast composition of specialised staff working within the field of learning technology. For example, in library and information services, the last decade has witnessed national funding of over 500 projects involving at least 1000 staff. However, the disjointedness in the funding and continuation arrangements has had two major consequences for work within projects, firstly for the staff and secondly for the projects themselves. In terms of the human resource aspects of such arrangements, most staff who contribute to national funded work do so with little job security. The short term nature of such projects has serious implications for the careers of staff who work on them as well as for the institutions in which they are employed. Two recent studies served to increase understanding about the issues surrounding the recruitment, development and retention of learning technology, library and information services project staff in UK higher education (Beetham et al, 2001; Chems, 2002; respectively).

Both nationally and institutionally, moves to join up thinking about educational development across a number of increasingly overlapping areas of academic business are apparent: quality enhancement, scholarship and research in teaching and learning, IT policy and human resources. In 2003, the Teaching Quality Enhancement Committee (TQEC, 2003: The Cooke Report) recognised the need to address the “widespread perception that the arrangements for quality enhancement are complex and fragmented”, and insufficiently “user-focused” and to interweave more tightly the various strands of support that had been separately established over the years. This review of future needs and support for quality enhancement is likely to bring about several changes over the next few years in the way that learning and teaching in UK Higher Education is organised, developed and supported.

Changing practice through national educational development projects

Three significant national programmes (TLTP, FDTL and ScotCIT) have supported learning technology development in UK higher education over the past decade. Each of these programmes called for project proposals from individual HE institutions or consortia in a competitive bidding process. The Teaching and Learning Technology Programme (TLTP) was set up in 1992 with an aim within the first two phases of 76 projects to encourage the higher education sector to work collaboratively and explore how new technologies could be exploited to improve and maintain quality within teaching and learning. A third phase of around 30 projects in 1998 concentrated more on implementation and embedding of materials within institutions. The Fund for the Development of Teaching and Learning (FDTL), now in its fourth phase, was established in 1995 and has so far supported 94 projects throughout HEFCE-funded institutions. The programme aims to stimulate quality enhancement in teaching and learning in higher education by encouraging the dissemination of good teaching and learning practice across the higher education sector. FDTL supports educational development more broadly than TLTP, though there are some projects exploring technology based approaches. In Scotland, the ScotCIT programme ran between 1998 and 2001 and sought to establish appropriate use of ICT as part of normal working practice at Scottish Higher Education Institutions. It comprised 19 individual projects spanning four integrated strands: staff development, web tools, intranets and infrastructure. A distinctive aim was to encourage the outcomes of funded projects to be applied outside the institutions directly involved in the development work. Most of the projects were therefore funded with the express purpose of embedding rather than a secondary objective of innovation and development.

Uniting all of these projects is their fixed term duration and therefore their considerable start-up and wind-down overheads. The short termism of nationally funded projects has equally serious implications in terms of the effectiveness of the projects in influencing practice in the medium and longer terms. It is clear that changing teaching and learning practices, especially at institutional level, involves a complex set of processes occurring over an often-considerable time span in order to gain momentum. Projects locate themselves within the complexities of institutional change management. They may also inherit the difficulties central academic development units themselves have in encouraging teaching development at both departmental and policy level. The operational context for national educational development work follows the quality enhancement agenda and a mission of academic development more broadly, for which a short-lived project is unlikely to be fully equipped.

Despite these issues, it is true to say that some projects have had more success than others in embedding new approaches into institutional teaching and learning practices. Some of the factors influencing such success are well known to educational developers across the sector, but have rarely been documented and are usually evidenced on the basis of individual projects rather than generic studies. On the ground, embedding might mean that projects require a sophisticated understanding of curriculum design and change processes. Successful embedding of project approaches is therefore likely to favour best a model of research and development far more than one of implementation (Dempster and Blackmore, 2002:131). For change to take place at institutional levels, the isolated practices of individual lecturers and students that a project may explore within and beyond its lifetime need to be evaluated and integrated with mainstream institutional practices. Taylor (1998: 273) suggests that “the challenge is to move beyond innovation at the level of individual subject or organisational element to change at the institutional level, the reinvention of cultures” and that “there is a need to recognise that the challenge is not limited to the development of innovation, but extends to the institutionalism of the outcomes of the innovation.” It is certainly evident that the two distinct but complementary ‘quality’ remits in an institution (quality assurance and quality enhancement) are often politically and operationally divided in terms of a university’s organisational structures and processes. As with all academic development work, therefore, the institutional context within which these projects operate is crucial to their success in the longer term.

In 2002, the LTSN Generic Centre funded the preparation of a review to draw out lessons learned from a number of national learning technology projects. The projects selected were funded by UK higher education funding programmes over 1998-2002 and were predominantly TLTP phase 3 projects, but also included three ScotCIT projects and one FDTL phase 3 project that incorporates a significant ICT element. These projects had in common the aim to develop and implement innovative teaching and learning approaches supported by ICT and embed these within institutional practices. There were some distinctions in project aims between innovating and embedding. Some projects explicitly set out to develop and innovate (and where embedding was often a second order objective), whilst others were developed with the express purpose of embedding existing materials or tools in new contexts and were funded accordingly. The study applied a combination of qualitative evaluation methods: document review; semi-structured interviews; focus group techniques. An analysis of the outcomes and experiences has identified specific factors that these projects felt had influenced successful embedding of new practices within institutions and beyond.

Project experiences of institutional embedding

The study uncovered a host of common experiences in relation to institutional embedding, particularly through the semi-structured interviews. Most revealing, and in fact typical of what the projects themselves experienced in institutional embedding, is the comment:

“We didn’t meet the main formal outcome actually, so we couldn’t tick that box – but the real outcomes, the real impact, was much greater than what was originally intended.”

If we therefore look beyond the project aims, the impact of the projects on their institution is in some cases quite considerable. The following discussion addresses some of the experiences that projects have identified as significant in a review of their own activities.

Exploring the potential of learning technologies

As far as the introduction of ICT is concerned, the projects performed an invaluable role in exploring its potential in learning and teaching. One project member remarked:

“... if we hadn’t gone through that experience we wouldn’t have known what we needed or the sorts of questions we needed answered.”

Decision-making processes, such as the choice of new technology or new learning situations, benefit from pilots and trials. The projects enabled their host institutions to conduct these pilots with external support. As one project evaluation report states: *“During the interviews, statements such as “lots of opportunities to practice” have been repeated throughout and the process has been described as a supportive “playground” in which to try new things.”* The projects were, therefore, an opportunity to gain knowledge about an area before committing institutional resources into ICT innovation.

Many of difficulties that project staff from inter-university consortia had in exploring learning technologies centred on working in institutions with an unfamiliar culture to their own. Furthermore, projects did not have a mandate to work in other institutions and were viewed suspiciously by local academics, information systems departments and staff development staff alike. In their own institutions, projects inherit the difficulties central units themselves have in encouraging teaching development at both departmental and policy level. A strong tradition of initiatives and support from the centre greatly assisted many projects to work effectively across partner institutions.

Working within a supportive culture

There is the issue of learning technology itself being a multidisciplinary field that draws on support from across an institution. The most effective embedding occurs usually where the institution and its departments have a supportive culture – where learning technology users do not feel isolated; where the relationship between the centre and the local is strong but flexible; and communications are good. There needs to be a balance between learning technology development and its support in practice to ensure that rapid developments in innovative areas can be co-ordinated by the institution. Two broad models of support for learning and teaching innovation emerge from the project evaluation reports: a centralised development team that serves local needs; or localised developments which draw upon central and external support. What is clear is that support services and projects thus require “two-way communication” to close the loops between central information strategic missions and local implementations.

There seem to have been assumptions made in projects about the role of support services and an almost tacit expectation that existing services within the institution will be able to extend their range to include new project requirements. In a couple of instances this was recognized and the original project teams were extended formally to include the input from e.g. library, computing service or staff developers. For example, the EFFECTS project noted that *“at all five participating institutions, the support of staff involved ... had been dispersed among a range of units including staff development, educational development, computing services and specialist learning technology units.”* (Smith and Oliver, 2000).

Integrating project staff expertise

Project involvement in itself brings benefit to the institution if the members of project staff are able to remain and consolidate their knowledge and experience. One project member noted that:

“There is now such a concentration of people [in the institution] who are now working in this area ... that concentration of expertise is quite important.”

The complexity of the learning technologist role has been documented elsewhere (Beetham et al, 2001; Oliver, 2002). What is important to note here is the extent to which project reports highlight the non-technical skills that learning technology project staff have to use in their work, including curriculum development, negotiation, advocacy, research, evaluation, dissemination, project and team management, resource planning and trouble-shooting. However, it has been long lamented that project staff are recruited on short-term contracts that expire with the lifetime of the project and that this generic expertise is often lost. Other factors in this regard relate to the nature of the project work being seen as separate from “core business” and therefore an unsustainable ‘development’ activity.

Influence on institutional strategic thinking

While projects are recognised to have been helpful in informing institutional strategies for learning and teaching or for e-learning, there was not always a simple connection between a project and institutional thinking. It might be noted that from the outset, a number of projects set out to work with the grain of existing cultures and to drive existing institutional strategies and needs. For example, the TELRI project worked with research-led institutions to embed a research-based approach to learning supported through ICT (Blackmore, Roach and Dempster, 2002); the ELEN and ELICIT projects developed the use of integrated web based learning systems to deliver to key areas of institutional need; and EFFECTS worked with institutional professional development programmes to embed a reflective action learning approach to developing the use of learning technologies in teaching (Beetham and Bailey, 2002).

In relation to institutional mission/strategies and policy, the influence of the project is sometimes hard to disentangle from general trends and movements in the institution. However, in a couple of the projects examined, there was felt to be some top-level impact and a sense that the project itself “*got things moving and it supported change*”. A number of projects noted that some lecturers had their perspective transformed through participation. These individuals were labelled as innovators in learning technology, recruited onto relevant committees who went on to influence policy and thus embed the ethos of the project within the institution. The cascading of project knowledge and approaches from one colleague to another, one committee to another, within an organisation is a highly effective, longer-term change management strategy. Even though some projects labelled the strategy or policy impact as “coincidental”, and most of those interviewed could not clearly isolate where project outcomes had been mainstreamed into the institution, there was documentary and focus group evidence in a number of projects that this had in fact happened. In one instance impact had been negligible and it was recognised that the project was “*ahead of its time*”. Most of the other projects seemed to point to significant impact either at the level of the individual (lecturer) or to the influence at institutions other than the home institution of the project.

Exchanging experiences across institutions and projects

The experiences gained through sharing practice and ideas with colleagues in other institutions was one of the most highly rated outcomes for the project teams to bring back into their own institutions. Project staff remarked that:

“...There’s a whole new level of strategic thinking which has come out of a lot of the work in [the project]. And not only from what we did within the University but also from looking at what others have done or are doing etc. I really can’t say that all these ideas are our own, a number we picked up from other places.”

Support for the projects in terms of the external funding or support agencies was generally commended. The main disjunctive area was felt to be inter-project collaborations. There was dissatisfaction expressed over the co-ordination of project outcomes and concern over longer-term survival of the knowledge gained. Some measures have been taken to address

the issues by maintaining a central database of project outcomes, although it was recognised that this does not address the loss of impetus in embedding new practices after funding has ceased.

Lessons learned from successes in projects

Given that most of the projects reviewed in the study (Dempster and Deepwell, 2002a) were completed over a year prior to the study, we have been able to extract a number of factors influencing the successful embedding of new practices within participating institutions and beyond. Often the criteria against which projects are deemed successful within the project community itself relates to process rather than outcome. An example of this is the high value project teams place on good collaboration with other institutions for problem-solving and sharing experiences. Whether or not the outcomes of the project are achieved, it is a positive experience if the collaboration has been good along the way. This in turn is a motivating force for continuation and embedding of project approaches into everyday practice.

“... It's had big impact for us as an institution, but also had a big impact on individuals. There has been a very vibrant, ongoing network, a kind of spiralling of people, building upon each others' knowledge and experience and what they've got from the project. “

The link between buy-in/ownership and successful adoption has been referred to frequently in the literature and was implicit in much of what projects experienced. Where projects are deemed to have “strongly influenced” strategic developments relating to the use of learning technology within their own institution, some common factors emerged from the research:

- **Timeliness** – in line with national and local developments, a number of inter-related institutional issues are being grappled with simultaneously and the timing for change can be quite critical.
- **Personal investment** – commitment beyond the letter of the contract, internalising project aims and investing in redefining the outcomes to ensure fitness for context
- **Good collaborations** – networking, synergies, supportive culture across project team, across participating institutions and beyond.
- **Champion in policy position** – making essential infrastructure changes and supplying further resources, taking on project/posts after external funding ceases.
- **Staff development angle** – integrating methods and materials into educational development for longer term gain
- **Ability to adapt** to local, emerging demands – flexibility in interpretation of project outcomes, changing with the times.

Where these factors were in place, there was recognition that the project had embedded itself to a degree within the institution beyond the lifetime of the funding arrangements.

An impact model of project development

Based on the findings from projects on factors associated with successful institutional embedding, a number of generic frameworks emerge (adapted from Dempster and Deepwell, 2000b):

- *Operational framework* providing a means to consider the contexts in which projects mostly operate, assisting in identifying stakeholders and considering appropriate strategies for engagement and collaboration;
- *Planning framework* that aims to assist projects in planning activities through their life cycle for implementation, collaboration, partnership development, evaluation and dissemination;
- *Organisational framework* offering suggestions as to how these factors might translate into practical ways of optimising sustained impact of project approaches and “embedding” in teaching and learning practices.

In the context of the study (Dempster and Deepwell, 2002a), “projects”, as referred here, are seen to be teaching and learning development projects – of an educational development nature, rather than research or product development projects, for which slightly different models might apply.

Operational frameworks

Associated with the issue of impact, distinctions in the operational contexts for consortium-based projects emerged from the project experiences of successful embedding.

Stakeholder context (Fig. 1)

–Planning for impact: identifying stakeholders

Institutional context (Fig. 2)

–In-reach activities: –informing local knowledge

Wider context (Fig. 3)

–Out-reach activities: making things happen elsewhere

Externally funded projects serve many purposes within the academic community and are urged by the funding bodies to identify their stakeholder community. The stakeholders are well documented and range from the individuals and their communities of practice (e.g. learners, teachers, IT/library staff, educational and staff developers), the institutions and their senior managers, the development programmes and their reporting lines, national support agencies, and the funding bodies themselves. Fig. 1 represents an operational framework for stakeholders of nationally funded projects and programmes.

The interactions between institutional stakeholders within the project and intensity of the collaboration may vary (see Fig. 2) and these might be worth considering separately in terms of activities through the project lifecycle. Several different organisational models for consortia are apparent and this could usefully inform project organisation and priorities for activities. Collaborative approaches exist where various partners undertake different but complementary tasks; parallel working describes a situation where various partners work independently but in parallel within a shared framework; and a centralised approach would exist where the lead partner has major responsibility for development and assigns support activities to partners. Obviously, there are variations on these broad models and the approaches may also alter through the life cycle of a project.

Figure 1: Project stakeholder context

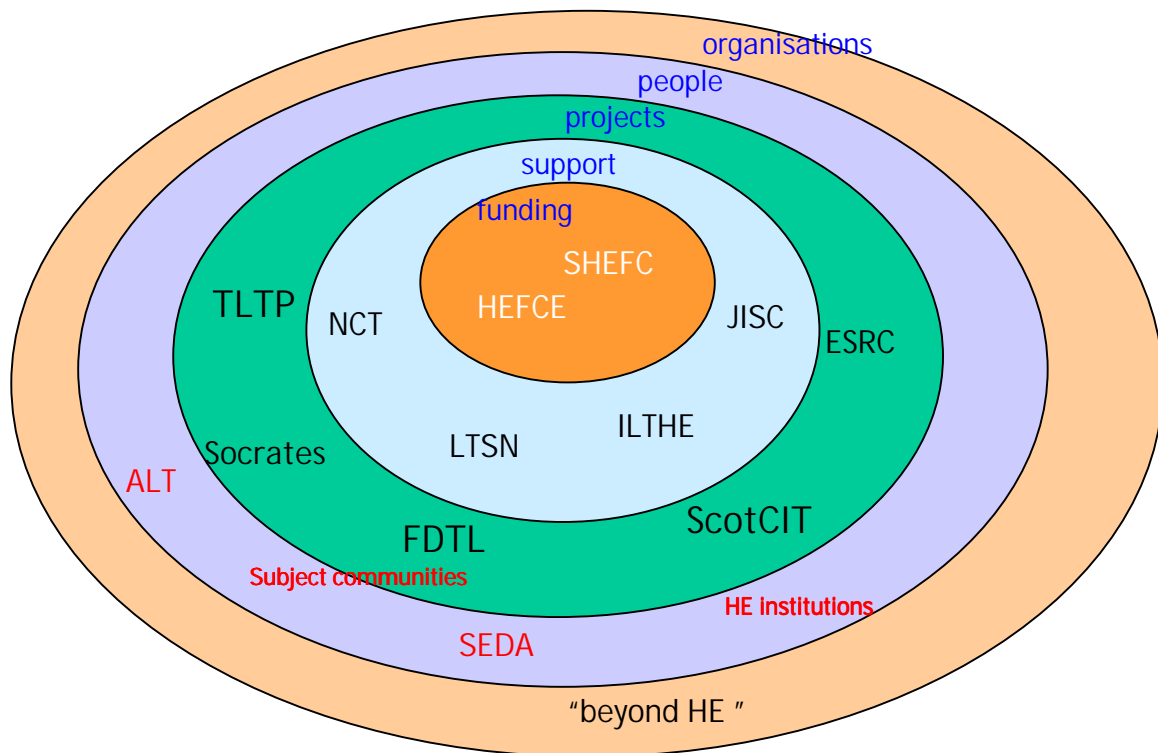
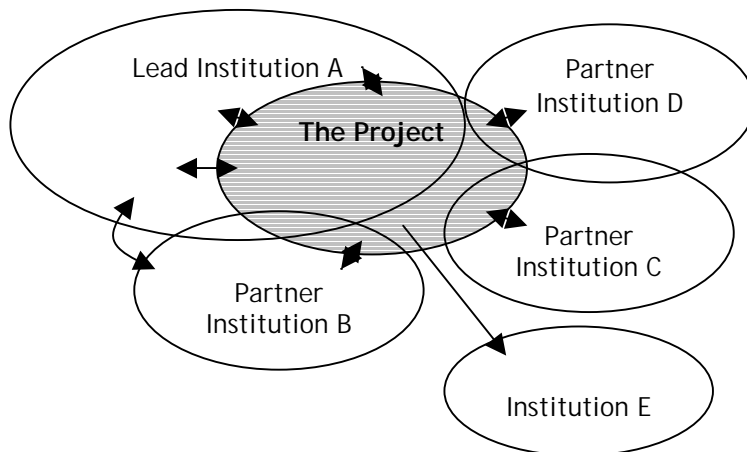
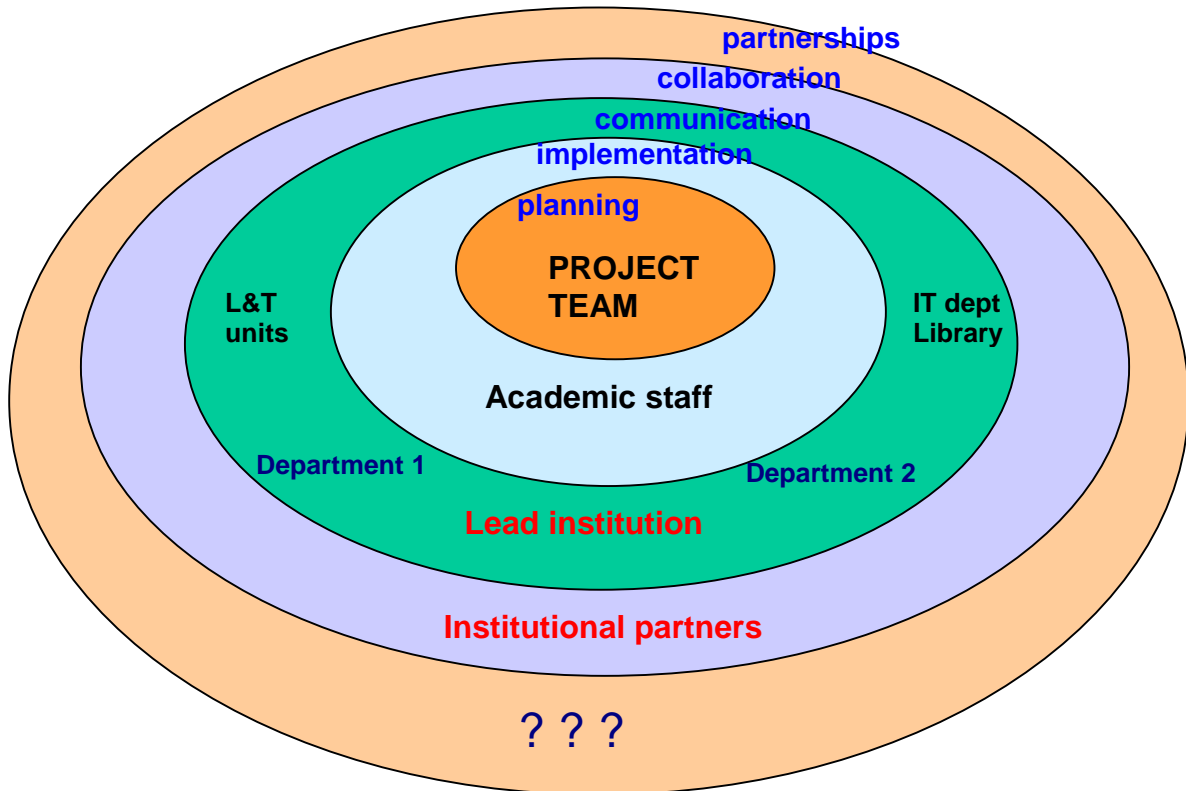


Figure 2: Consortium partnerships as institutional contexts



The wider operational context might represent a combination of the stakeholder and institutional contexts. In representing this, a continuum emerges that maps out project organisation against specific stakeholders in terms of project activities (as shown in Fig.3).

Figure 3: Wider operational context



A planning framework for project activities

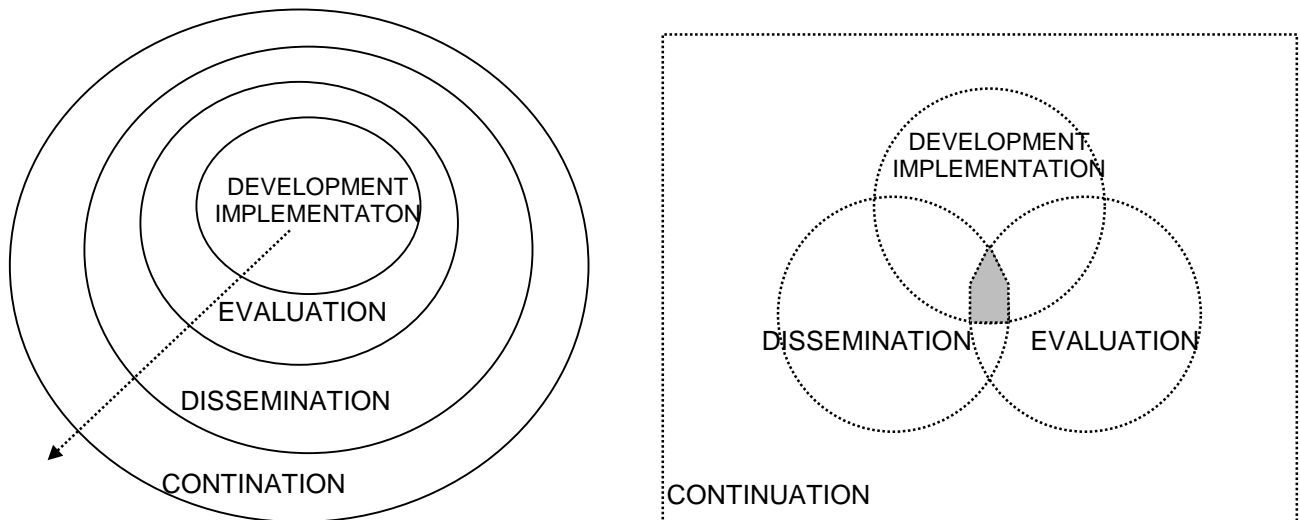
Planning of project activities tends to focus on four strategies:

- Development/implementation
- Evaluation
- Dissemination, and
- Exit/continuation.

The main development work might include production of educational concepts and tools, but predominantly the overarching aims of the national programme rely on implementation activities, in which particular approaches are tested out in specific teaching and learning situations. Staff development is often, but not always, secondary to implementation within courses, despite being an important part of the embedding process.

Projects that have been successful have looked at these elements in a holistic and non-linear manner. Planned activities do not necessarily start at the centre and proceed systematically to the outer layers, as represented in diagram (a) in fig. 4. Planning is aimed at engagement across operational, institutional and wider contexts simultaneously from the outset, as suggested by the diagram (b) in fig. 4. Project activities aim at synergy between these strategies - shown shaded in fig. 4 (b) - and are planned for throughout the project lifecycle. This maximises the likelihood of sustained impact of the successful new approaches developed by the project.

Figure 4: Organisation of project strategies



(a) Linear strategy

(b) Holistic strategy

Organisational frameworks

An early evaluation of TLTP projects by the Tavistock Institute (Sommerlad et al, 1999) focused on four key “implementation” strategies that support the activities identified by projects as successful in terms of institutional change. These are:

- Negotiating entry and pitching in at the right level
- Securing institutional support and getting the right stakeholders on side
- Mobilising and engaging teaching staff and other key actors
- Diffusing technology based teaching and learning innovations.

Guidance from the National Co-ordination Team () suggests planning activities according to the following objectives:

1. Awareness raising
2. Increasing understanding
3. Increasing uptake
4. Embedding.

The view is that activities that lead to the permeation of new ideas at the ground level that might lead to implementation and sustained changes in teaching approaches require some kind of scaffolding. This is a useful form of impact hierarchy, assuming that lecturers will move forward through the four stages from thinking to doing. The first three facilitate some degree of impact on practice, but do not necessarily lead to sustained changes in practice. Certainly, projects should be organising the activities with all four goals in mind, but there is not a guarantee that each will lead to the next level in terms of impact.

By systematising each activity across each layer of the project’s wider operational context (fig. 3), projects might aim to address all four objectives by taking a “*slice of the onion*” (fig. 5). This provides a useful strategic framework for linking current activities and outcomes with forward-looking ones. Figure 6 shows how a single planning activity at the project team level might be transferred concurrently throughout the local, institutional and wider contexts.

Figure 5: Strategic project development

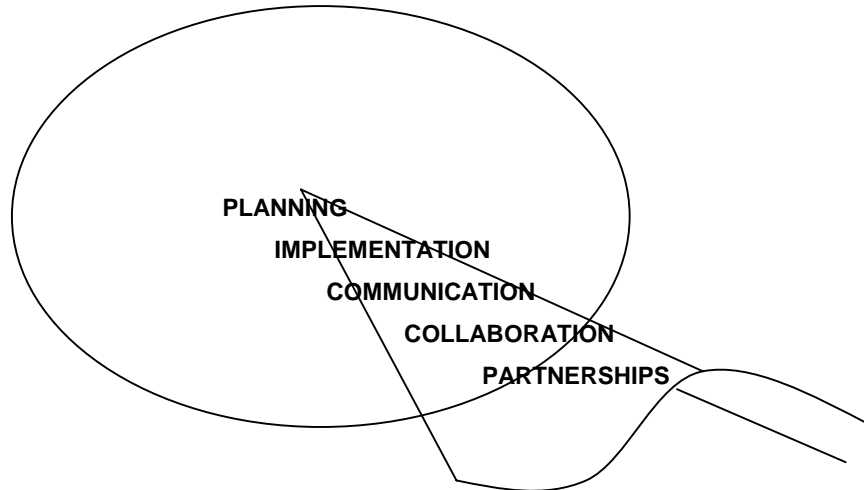
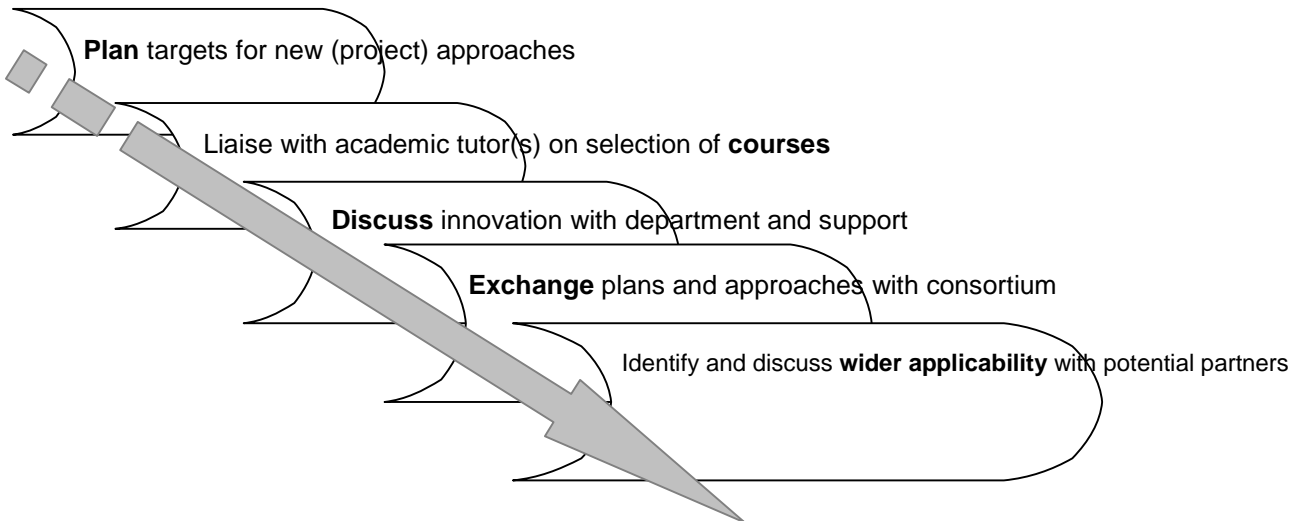


Figure 6: Transfer of project activities from local to wider context



The following aspects of project organisation, planning and management are typical in projects that have:

- had a significant impact,
- produced sustained changes in practice, and
- embedded their approaches widely

These “success” factors thereby map onto our generic framework as below and are, in effect, guidelines for strategic project development.

Planning - Direction and commitment

- Develop project aims and activities in line with local strategies and objectives where possible.
- Involve schools and department directly in the creation and delivery of the project.
- Recruit enthusiastic individuals or second those you know to be committed and who understand the nature of project work.
- Build project and partnerships on timely needs of the field, the sector or the institutions.

Implementing - Engagement and implementation

- Take a flexible, modular approach to sub-project developments where possible, so that if one has to be dropped, others can take their place – the Pareto Principle.
- Avoid time-wasting on non-committed sub-projects by having back-up
- Provide written guidance on new techniques or software and aim to empower academics, departments and the project as much as possible in the use of technology..
- Ensure that those not directly involved in the project (at least from the outset) are involved early on; market the project well from the start – it really pays off.

Communication - Collaboration and communication

- Develop a “community of practice” or user group/special interest group around the project activities and development
- Look early to the wider applicability and plan for it in development, evaluation and dissemination activities – perhaps make use of an experts group or evaluation focus group throughout the project. This also serves to network those involved and bring in a wider range of interests and experiences.
- Ensure regular liaison between sites, and that communication is inclusive of all project staff and local support.
- Involve all sites in evaluation activities, which also serves to enrich the data collected.

Collaboration and Partnerships - Roles and relationships

- Clear delegation of activities and responsibilities between project directors –, project manager, and educational developers – as “owners” of the project, academic leaders, operational managers, day-to-day co-ordinators, technical developers, etc.
- Aim to involve other support departments closely from the outset of the project (even in the bidding process), particularly IT departments for ICT-related projects.
- Ensure continuation of knowledge and skills by professional development, joint activities and good documentation.

Conclusions

The focus of the study of national learning technology projects was not so much whether the projects successfully met their intended outcomes, but rather how they successfully effected changes within their home institution or within collaborating institutions. The aim was to identify common features of these projects that may have facilitated these changes. Two broad dimensions of the success factors could be discerned: in-reach and out-reach.

In-reach is where the project has embedded its ideas or approaches or tools within the home institution and informed academic practice. Ideas and concepts have been cited in this regard, materials and tools seem to have been less widely taken up.

Out-reach is where the project has influenced change elsewhere. Some of the projects felt that they may have actually “failed on home territory” and yet they were certain that their influence had been significant in other institutions. Many project directors remarked that projects had been important in assisting or even opening debate about teaching and learning practice, or aspects of it, and the role of technology in these processes. The influence of the project nevertheless frequently became entangled with general strategic development within institutions.

There are a number of factors common to most projects, which appear to be key drivers in determining embedding within institutions. These factors fall across three broad motivations for involvement in projects:

- external (response to national initiatives or funding streams),
- internal (response to institutional or department strategy or targets), and
- self-directed (personal interest of project innovators).

Where these motivations converged within a project, there seemed to be the greatest likelihood of successful embedding of both the ideas and the approaches within institutions. In these cases, the outcomes have the potential to be long lasting, to be an integral part of staff development programmes and to inform the strategic direction of the institutions targeted.

Experience across the national projects reviewed in this study suggests that projects that are working with a supportive central unit, working with the grain of the institutional culture are more likely to embed change. It is perhaps a little ambitious to expect that significant evidence of embedding be produced within the period of a project’s funding. Most changes in practice take place over time and in the review of projects, it is apparent that this can vary quite substantially between projects and programmes. Post-project evaluation might, however, usefully address:

- *Approaches that led to good impact in the institutions*
- *The kinds of local and external activities that were effective*
- *How the project is moving from innovation to embedding*

Final thoughts

Given the outcomes of the review activities in this study, it is interesting to reflect on the ways in which projects are an effective approach to developing and embedding new practices in teaching and learning in HE. Many of the projects reviewed were funded with the express purpose of embedding rather than with the aim of innovation and development. Nevertheless, the distinction and distance between innovation and embedding is vast in regard to the processes of educational development and institutional strategic development. The capacity of an institution to ready itself to respond to new approaches that technology or other innovations can offer is also paramount.

National projects are not always resourced, equipped or best positioned to handle the task of organisational change as they generally have insufficient linkages with strategic planning and institutional mechanisms. At the onset of TLTP phase 3, the Tavistock review (Sommerlad et al, 1999) had already highlighted an issue that persists today, that “*this does raise questions about a*

broad programmatic strategy of implementing generic products and services across diverse institutional contexts, unless there is very real scope for customisation and local embedding.”

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Projects reviewed

TELRI (*TLTP3/no.92*) <http://www.telri.ac.uk>
Technology Enhanced Learning in Research-led Institutions

ASTER (*TLTP3/no.94*) <http://cti-pys.york.ac.uk/aster/>
Assisting Small-group Teaching through Electronic Resources

SoURCE (*TLTP3/no.79*) <http://www.source.ac.uk/>
Software Use, Re-Use and Customisation in Education

EFFECTS (*TLTP3/no.89*) <http://sh.plym.ac.uk/eds/effects/>
Effective Framework for Embedding C&IT using Targeted Support

TALENT (*TLTP3/no.82*) <http://www.le.ac.uk/TALENT/>
Teaching And LEarning with Network Technologies

ELEN (*TLTP3/no.84*) <http://www.lincoln.ac.uk/elen/>
Extended Learning Environment Network

ANNIE (*FDTL3/no.60*) <http://www.ukc.ac.uk/sdfva/ANNIE/>
Accessing and Networking with National and International Expertise

SESDL (*ScotCIT*) <http://www.sesdl.scotcit.ac.uk/>
Scottish Electronic Staff Development Library

ELICIT (*ScotCIT*) <http://www.elicit.scotcit.ac.uk>
Enabling Large-scale Institutional implementation of C&IT

NetCulture (*ScotCIT*) <http://netculture.scotcit.ac.uk/>
Staff Development Network