BRITISH ARMY E-LEARNING: THE BENEFITS OF FOLLOWING THE PATH OF MOST RESISTANCE

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ABSTRACT

Since the bold recommendations of the Defence Training Review of 1998, the British Army has, of necessity, adopted a pragmatic approach to implementing the use of e-Learning for training and educating its personnel.

The advantages that e-Learning purports to offer a large organisation with a distributed workforce, especially in terms of cost savings, are very attractive. To fully integrate e-Learning as a training option the Army developed an e-Learning Strategy working in harmony with MoD guidelines. Focusing on 5 lines of development - Funding, Courseware, Management, People and Infrastructure - the e-Learning Strategy provided a clear vision for e-Learning across the Army. However, the reality of implementing each of the lines of development has been fraught with practical difficulties & hurdles.

The authors argue that, with the benefit of hindsight, some of these obstacles have actually proven advantageous to the organisation as a whole and that far from being resisted, should be exploited.

ABOUT THE AUTHORS

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BACKGROUND

A key recommendation of the UK's Defence Training Review (DTR) (2001), was that 80% of appropriate specialist training courses should deliver at least a quarter of their material by e-Learning within 5 years of the implementation date. The DTR defined e-Learning as "*The collective term that encompasses web-based structured learning using computer and communications technologies delivered anywhere and at any time it is needed or desired.*"

Achievement of the DTR target for e-conversion of courses depended on 3 factors: (1) the development and articulation of a clear e-Learning strategy; (2) a carefully costed implementation plan; and (3) sufficient funding. Despite e-Learning being, in part, a 'spend-to-save' initiative, the full funds required for implementation proved unavailable, given other Governmental priorities. Without sufficient funding, the e-Learning vision looked in danger of becoming merely a hallucination which would play into the hands of the many sceptics.

The disappearance of the 'spend' part of the 'spend-to-save' logic did not deflect Governmental desire for the 'save' part still to occur and so, with its traditional 'make it happen' mentality the British Army was forced to adopt a pragmatic approach to implementing the DTR's e-Learning agenda. In practice this meant innovation of local solutions against longer timescales than were originally envisaged. With this initial lack of 'pump priming' funding, implementation of e-Learning in the British Army was thus destined to follow the *path of most resistance*. Contrary to expectations though, this has brought some unexpected and substantial benefits and it is these that are the subject of this paper.

Before discussing these benefits, we believe it is useful to establish a benchmark of shared understanding of our current interpretation of *e-Learning* which has developed over the past 3 years.

WHAT IS E-LEARNING?

The advantage of the DTR's definition of e-Learning, given earlier, is that it is sufficiently general to avoid it being too constraining with regard to the developing field of e-Learning technologies. However, this very strength can harbour a weakness, namely, that it allows computer based learning materials which may vary very broadly in their technical and instructional sophistication to be re-classified as 'e-Learning': these can include the lower end materials (e.g. traditional page turning Computer Based Training (CBT)) which tend to undermine the credibility of the revolutionary claims made by e-Learning's most senior advocates. We contend that 'true' e-Learning must exhibit the 6 features identified in Figure 1, this model has now been incorporated within the British Army's e-Learning Guidelines.

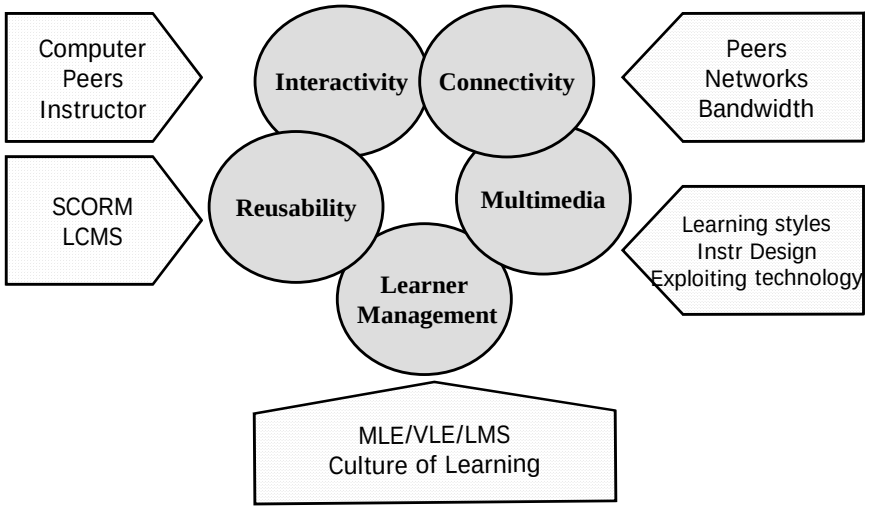

Figure 1. What is e-Learning?

Underpinning this model is a newly emerging theory and practice of e-Learning or *e-Pedagogy.* While a detailed discussion of e-Pedagogy is beyond the scope of this paper, its basic feature is that instruction moves away from the traditional one way 'transmission' model, where the teacher imparts knowledge to students, towards a student centred teaching and learning situation where it is accepted that the social context places an important if not essential role in the creation and acquisition of knowledge. The philosophical tradition from which this approach derives is sometimes referred to as 'constructivism', and it finds practical expression in e-Learning by such means as threaded discussions involving e-moderator (human instructor)/student and student/student electronic interaction[i].

BENEFITS OF FOLLOWING THE PATH OF MOST RESISTANCE

The benefits may be grouped under 5 headings and each will be examined in turn.

Diverse Innovation

The initial lack of centralised funding for the development of e-Learning courseware led to the emergence of a 'cottage industry' throughout the UK Ministry of Defence (MoD) where small groups of entrepreneurs and visionaries experimented with e-Learning technologies, such as Learning Management Systems (LMSs), or built on existing CBT expertise to develop e-Learning courseware. Faced with very limited budgets and often under close pressure to prove a Return on Investment (ROI), through necessity, these small groups of content producers began to collaborate, thereby developing into an MoD e-Learning community of practice. Such sharing of experience and lessons learnt has been most beneficial to the community and the wider MoD reducing a potential reliance on consultant support, with its associated extra costs.

Courseware Development Teams

Restrictions in funding also forced innovation in manpower resources for e-Learning project teams. For bespoke courseware development there are clearly 3 options available: (1) contract out work to a commercial company; (2) develop the courseware in house using a permanent team, or (3) *contract in* the necessary manpower for the duration of a project. The latter has been the option successfully adopted by, for example, the Royal School of Signals at Blandford Forum in Dorset which supplemented its in-house permanent team only for the duration of specific projects. This 'bought-in' skills option meant that expertise could be contracted in on an 'as required' or 'casual basis' for up to 50 weeks of a year without incurring the full career costs (pension, holidays etc).

Buying in the expertise required for a specific courseware development project has meant that full control of the project has been maintained by the core of permanent staff. A useful incidental advantage of this approach has been the upskilling of the permanent staff as they work alongside experienced contractor support. Depending on the needs of the courseware development project and the existing staff structure, different configurations of team have been appropriate for different MoD organisations. Two examples of such project team structures are at Figures 2 and 3.

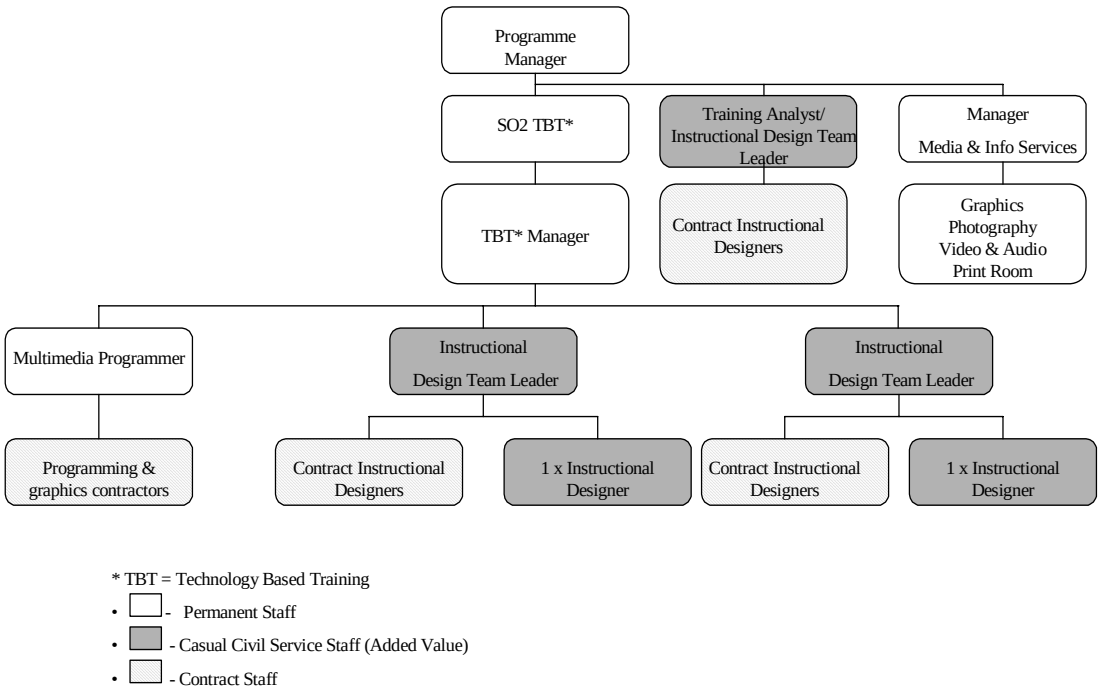

Figure 2. The Royal School of Signals e-Learning Team

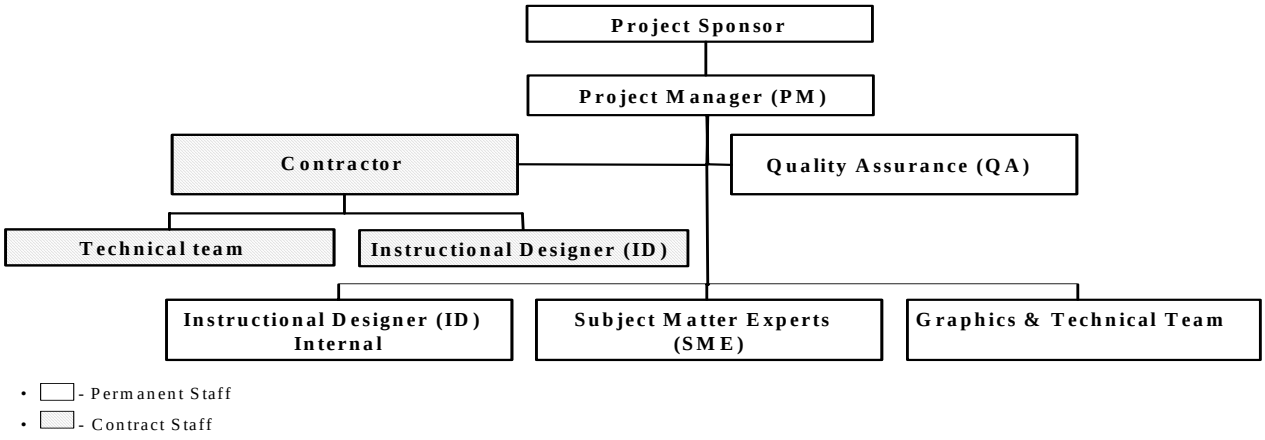

Figure 3. The Defence Medical Education and Training Agency e-Learning Team

An alternative to the use of external personnel being contracted in has also been to re-role existing resources, such as some of the in-house media studios. The MoD has several hundred personnel employed in various locations as media design specialists. In the past these media specialists have produced a variety of products from PowerPoint™ presentations and posters to printed publications and web sites. Demand for cheaper than commercially priced e-Learning content has encouraged media specialists to add further skills to their portfolios. This creation of in-house e-Learning content production centres has not only provided a cheaper alternative to contracting out courseware production, but also enhanced the MoD's status as an intelligent customer. Re-purposed media studio staff also have the advantage of being available for future courseware updates or maintenance.

Trial Led Development

Among the British Army's ongoing e-Learning projects with which the authors have been significantly involved are two major trials: the Royal Electrical & Mechanical Engineers' (REME) Pathfinder Trial and the Defence Medical Education and Training Agency's (DMETA) Battlefield Advanced Trauma and Life Support (BATLS) project. These trials illustrate a number of advantages for the implementation of overarching strategy; these include the following:

Trial Specific Definitions Of E-Learning

E-Learning Trials are a low risk way to develop what is meant by 'best practice' in e-Learning, both conceptually and empirically, before widespread implementation. Trials can also help clarify misconceptions as to what e-Learning is or might be in different contexts. In the REME Pathfinder Trial, for example, a decision was made that the trial would seek to demonstrate the most sophisticated form of e-Learning, even though it was appreciated that this would not be appropriate for all other contexts. This early work helped inform conceptual development of a generic model for e-Learning (see Figure 1, above).

Change Management

As observed earlier, e-Learning has many detractors. The reasons are many and various, but include the understandable concerns of conventional classroom instructors that their jobs may be at risk. However, e-Learning trials have allowed such individuals to experience e-Learning in a context which is less threatening than widescale implementation. By so doing, they came to appreciate that before full implementation, many of those who feel unable or unwilling to become e-moderators will have retired! While for instructors who are able and willing, the trial has offered an opportunity to 'future proof' their employment. We have found that the e-Learning trials benefit from one or more 'Hearts & Minds' workshops, especially when aimed at instructors. Moreover, we have found that e-Learning trials may allow instructors to assume a degree of ownership by allowing them to influence development of the courseware and realise scope for 'blended solutions'. Thus, despite their research focus, e-Learning trials may be seen to be an important change agent.

Development of Doctrine & Policy

E-Learning trials have allowed existing training doctrine and policy to be tested and, if necessary, developed if found wanting. Such an approach allows for piecemeal development of doctrine and policy and gives an advanced warning of problems and issues which would become major obstacles if unaddressed. For example, with the REME Pathfinder 2 Trial, some aspects of training doctrine and policy were found to be seamlessly compatible, indeed, useful, in justifying and communicating the aims of the trial; on the other hand, advice given in the published Defence e-Learning technical guidelines regarding Intellectual Property Rights (IPR) proved inadequate. The local solution to the latter issue has not only focused attention on IPR but also has allowed us to suggest how Defence policy should be amended.

Intelligent Customer

E-Learning trials have also been the means by which to achieve Intelligent Customer status. Both the BATLS and REME Pathfinder 2 trials showed that quality assurance of e-Learning courseware required inputs from 4 main domains: (1) Content Knowledge, the Subject Matter Experts (SMEs) who know the subject matter of the e-Learning course; (2) e-Pedagogy. SMEs who understand the underlying theory of teaching and learning as applied to e-Learning; (3) e-Media Element Design. SMEs responsible for producing computer graphics within the courseware (including animations, digital video and stills photography); (4) e-Learning Technology. The SMEs responsible for programming, configuring the LMS and ensuring any necessary conformance of the courseware with the Shareable Content Object Reference Model (SCORM). By conducting in-house trials, upskilling of MoD personnel has been necessary and has therefore initiated the evolution of the British Army into a more Intelligent Customer.

E-Learning Decision Toolkit

To 'pump prime' e-Learning in the MoD, limited amounts of centralized funding for courseware eventually became available and was, understandably, fiercely contested. A beneficial outcome of this contest was the need for a suitable tool to evaluate each courseware proposal on its merits. Training Needs Analysis (TNA)[ii], the method usually used by the MoD formally to examine training options and conduct a cost benefit analysis, was considered to be too broad in the context of e-courseware conversion. Accordingly, a bespoke tool for this purpose was developed - the *e-Learning Decision Toolkit* (eLDT) which was then mandated across the Defence community. Essentially the eLDT evaluates the courses run by a training organization or school by considering whether there is a business and educational case for converting content to e-Learning. The development and mandating of the eLDT was a clear benefit derived from the contest across Defence for a limited e-Learning budget.

Another aspect of the eLDT is an evaluation of the readiness of an organization to embark on an e-Learning project. Thus a training school may have some ideal content for development as e-Learning but as an organization be totally unprepared to embark on such work. By using the eLDT matrix, funds could be allocated to organizations which, not only had a sound business case in terms of content, but also were more *ready* as an organization. The beneficial result of this policy was the development of centres of excellence which could proceed in courseware development on several projects at once, building on the possibilities of reuse from the very start.

Another advantageous result of the centralised but trickle funding was a longer requirements definition phase and more time to evaluate and learn lessons from each project. Lessons which could then be passed around the emerging MoD e-Learning community. Having delays imposed upon projects due to limited availability of funds also provided more time for each project manager to establish and articulate his requirement more clearly.

Cultural Change

As identified earlier, trials can function as a multi-faceted change agent. However, the primary benefit of significant *delay* in introducing e-Learning on a large scale has been with regard to the many and various cultural adjustments required for successful adoption. An example of this has been Military Knowledge 1 (MK1), a new course for all Army officers that was due to be developed as e-Learning but was 'downgraded' to an interim solution as paper based distance learning. This has allowed the chain of command more time to become familiar with the new working practices of *distance study* without the additional difficulties of technical connectivity and user upskilling. Technical difficulties encountered with e-Learning (and especially connectivity) could very easily have become the scapegoat for undermining acceptance of distance learning and its inherent learner responsibility. Having overcome the management issues associated with the paper based MK1, the Army will be in a better position to optimise the e-Learning version currently being developed.

A potential challenge to the successful implementation of e-Learning in the Army is an issue that affects most military organisations, that of staff turnover due to postings. However, rather than limiting the development of e-Learning intelligent customers through the loss of expertise, the MoD's policy of posting individuals after 2 or 3 years has been advantageous, as 'obstacles' to e-Learning cultural change (e.g. an individual in a key stakeholder appointment who can make strategic progress difficult through subjective resistance) have been moved from post! The loss of e-Learning experts in this field has been ameliorated by extending individuals in post for as long as possible with the intention of upskilling colleagues or using civil servants to fill key e-Learning appointments.

Synergy With Other Projects

One of the most frustrating challenges along the e-Learning path of most resistance has been the establishment of the infrastructure necessary for e-Learning. The required infrastructure can be divided into 3 main parts; the learning management and content management aspects, the connectivity and bandwidth, and the facilities for learning.

The learning management aspect of the MoD's e-Learning infrastructure is the Defence Learning Portal (DLP). DLP is the MoD's centrally funded LMS and LCMS which has taken some 3 years to procure (the contract was signed in June 2004). The delay in the procurement of DLP has been mainly due to issues with proving a Return on Investment (ROI). The limitations of trying to implement an e-Learning strategy when one of its key facets is absent, or delayed, are many, least of all the credibility of the strategy itself. However there have been some advantages that have emerged from having to wait 3 years for a central cog in the e-Learning infrastructure.

The delay in procuring DLP has, if anything, 'forced' more co-operation with other major MoD IT projects such as BOWMAN, the Joint Personnel Administration (JPA) and Defence Information Infrastructure (DII) projects. All four projects are now so closely interwoven that they rely on each other, something that may not have happened 3 years earlier when each project had the potential of developing in isolation. Indeed, JPA and BOWMAN will use DLP to deliver part of their training solutions and DLP will use the connectivity provided through DII to deliver e-Learning to users across the MoD.

The delay in delivering DLP has meant that the DII project will be advanced enough to provide a substantial portion of the MoD with a suitable degree of bandwidth for the delivery of e-Learning.

Another aspect of the e-Learning infrastructure requirement which the delay in the procurement of DLP has facilitated, has been the co-ordinated purchase of hundreds of electronic classrooms both within the Army Training and Recruiting Agency (ATRA) and as part of the Generic Training Facility (GTF) project in preparation for digitisation training. Co-ordinating these projects together with DLP will certainly lead to a more 'joined up' project management approach and ultimately more streamlined, cost effective and 'generic' training access points.

Delay in the procurement of DLP has meant a centralised organisation, the Defence Centre of Training Support (DCTS), which was only established in October 2003, will be responsible for day to day control of the project, thus co-ordinating Defence e-Learning initiatives rather than allowing single services to go their own way. Such central control of e-Learning is also essential at a time when other DTR initiatives are coming to fruition, such as the formation of several Defence Training Establishments (DTEs) which are amalgamations of previously single service schools.

Funding Issues

One of the appeals and central claims of e-Learning in 2001 was the potential for cost savings through the reuse of courseware (achieved by adherence to 'standards' such as SCORM) and the reduction in travel and subsistence costs due to distributed training replacing residential training. Unfortunately e-Learning comes at a high initial price (both in terms of infrastructure and adherence to 'standards') with the result that for many military units the e-Learning option appeared to be one of 'all pain and no gain' for the foreseeable future until a critical mass of e-Learning courseware becomes available through the DLP. Indeed military training organizations soon identified that although they are expected to invest in e-Learning courseware development, they are not necessarily the organization to benefit from reuse of that courseware or any savings made in travel and subsistence.

Contracts

Funding not only depends upon the existence and will to place funds, but also contracts being in place in a timely manner. Experience with the e-Learning projects has shown that the placing of contracts for courseware development can delay a project for many months. The 'cottage industry' aspect of e-Learning in the Army often meant that the relatively small financial cost of such contracts encountered slow response from under resourced contracts staff to the technical proposals that had been agreed in principle by all parties. Whereas a large scale project may reasonably expect some delay in placing a contract, smaller scale projects, especially those required to spend available funds to a locally determined deadline, cannot afford this delay. The prevalence of this experience has driven the establishment of Defence Enabling Agreements between the MoD and approved commercial courseware developers to expedite the contracts process for e-Learning projects.

CONCLUSION

This paper had described how the British Army has unintentionally followed the path of most resistance in its implementation of e-Learning. Despite this, the relatively small scale of e-Learning over the last 3 years has led to increased collaboration between different departments across the MoD as uniformed and civilian personnel have had to share experiences, and learn lessons from each other in order to cope with the complex world of e-Learning. This has led to a community of practice with small teams co-operating for the common good. One clear benefit of this has also been the development of the MoD as an intelligent customer with regard to e-Learning.

Three years ago the expectation was that there would be large scale funding for e-Learning infrastructure and the e-conversion of hundreds of courses in a 'big bang' approach. In the event, funds required for full implementation proved unavailable given other Governmental priorities and for a while the initiative was in danger of stalling. The initiative was trickle funded which led to piecemeal implementation of the original vision against longer timescales than were originally envisaged. This led to unexpected and substantial benefits including diversity of innovation, practical experience based on trials, and the emergence of the MoD as an intelligent customer.

The path taken was not the one of initial choice but with the benefit of hindsight it appears that it should have been: the difficulties encountered revealed the initial poverty of our understanding of both the technical and human aspects of implementing e-Learning. Had the implementation been fully funded, the DTR target for e-conversion of courseware may well have been met by 2006 but at a cost - reduced learning effectiveness and value for money. The path of most resistance has afforded a period of funded development through experimentation. The authors believe that it is this that has been the key risk reduction measure for the full implementation and acceptance of e-Learning in the British Army and that the time is now right to exploit the progress made to date.

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[i] See, for example, *Short Paper on the Efficiency and Effectiveness of Distributed Learning*, (2002 – Draft) by the Danish and Turkish Delegation to the NATO Training Working Group on Individual Training and Education Developments.

[ii] Joint Services Publication 502 (2003) *The Defence Guide to Training Needs Analysis.*