

Towards a unified e-learning strategy

Response to the government consultation by Alpha LMS¹

Q1. What are your views on our description of e-learning and its benefits?

Paragraph 19 gives a good account of

- the ability of e-learning to offer individualised learning (points 1, 2, 6)
- to aid collaboration and communication between students and teachers (points 3, 4, 5, 7, 8)

No satisfactory account is given of the importance of the computer's interactivity. This is its chief benefit as a teaching tool. We learn by doing. In particular, we learn when what we do receives timely and appropriate feedback, engaging us in an educational conversation. Computers can dramatically increase the interactivity experienced by students during their school day. See *Increasing Interactivity* in answer to Q15.

The value ascribed to individualised learning and improved communication is debatable:

1. Isolation of the learner is an issue for adults (to whom, significantly, both examples in this chapter apply); but, in normal circumstances, not for school children. Projects in the Highlands and Islands and Ultralab's NotSchool projects are exceptions which prove the rule.
2. Individualised learning models may be useful, particularly in managing differentiation automatically and ensuring that work is correctly pitched. But it should not be assumed that a further fragmentation of the school-aged curriculum would necessarily be beneficial. Recent statements by the new Head of QCA suggest that the British Education System already suffers from a proliferation of qualifications, and that we should seek to focus more tightly on the core curriculum.

The key purpose of e-learning for school children is to improve learning

- in the core curriculum
- for children who are in school.

It will achieve this through its use of interactive learning materials and by managing differentiation automatically, not principally by setting up virtual classrooms or remote tutoring.

¹ Alpha LMS supplies a new learning management system of the same name. It has played an active role on Curriculum Online's Technical Standards Working Group and its Learning Platforms Stakeholders Group. See www.alpha-lms.co.uk for more information.

Q2. Do you think we have identified the main weaknesses and barriers to the use of e-learning?

A lack of personal access to technology is **not** the major cause identified by recent OFSTED reports for our failure to make more rapid progress with e-learning: rather it is unclear thinking about e-learning pedagogy. *ICT in schools* (April 2001) is particularly critical of the widespread use of internet research in schools² and also comments that much of the NOF-funded training was ineffective because of the lack of good pedagogy³.

The perceived importance of internet access provided the conceptual basis of the National Grid for Learning – which, according to the ImpaCT2 report, has failed to deliver significant learning gains in schools. The correlation between internet access and adult participation in learning, identified by the NIACE report, does not provide evidence of a causal link: indeed, the fact that adult participation in learning has reduced at a time when access to the internet has increased suggests otherwise. Access to the internet is certainly useful for adult learners but, given the progress already made in this area under the NGfL, it should not be regarded as a priority in schools.

Blaming inappropriate assessment methods smacks of ‘shooting the messenger’. See further comments in response to Q10.

The argument in paragraph 29 that ‘our main barrier to successful e-learning is low uptake and usage rather than infrastructure’, depends on a narrow definition of infrastructure to mean hardware. There is also less tangible infrastructure (learning management software, open standards, training) for which government has an important role to play but for which progress has been much less impressive. The problem with e-learning programmes over the last six years is that they have been hardware-led, with government failing to put in place a clear vision of how the hardware was to be used.

Care should be taken with offering incentives such as promotion and bonuses, as these incentives often encourage teachers to use technology unproductively as a good in itself, leading to the implementation of inadequate pedagogies, as has happened so often before. The incentive for e-learning should be that it works, saves the teacher time and achieves better results. New posts should be created because they are required, not as rewards.

Care should be taken in launching expensive training programmes, when it is unclear what it is that teachers are being trained to do. Training teachers to send emails to each other may increase their confidence with computers, but it will not deliver e-learning in the classroom. This was an entirely predictable weakness of the NOF programme, identified by OFSTED’s *ICT in Schools* report⁴. Training is a key piece of this jigsaw, but the quality of training is vital. The government should offer much clearer leadership in setting the objectives of training programmes.

² ‘Pupils do not have suitable strategies for efficiently and selectively searching the data available’, ‘For too many pupils, the location of information remains an end in itself, and they present information unprocessed’, ‘Too often the use of ICT involves unnecessary extra work or unproductive waiting’, (*ICT in Schools*, April 2001, paragraphs 34 and 35).

³ ‘Generally, teachers’ needs with regard to the pedagogical use of ICT in their subject or phase were not ascertained effectively in advance’, ‘The lack of a subject-specific focus in the training programmes is a major weakness...matters of pedagogy are generally not sufficiently explored.’ (*ibid*, paragraphs 77–79).

⁴ See note 3, above.

It is said (paragraph 31.2) that there is ‘too little attention to exploring the new forms of pedagogy made possible by e-learning’, continuing that ‘teachers and researchers need more time and support if they are to keep pace’. This is a *non-sequitur*: the problem identified in the first half of the sentence is not that the teachers are having trouble keeping up, but that there are not enough people going out in front doing the exploring. Hard-pressed teachers *may*, but should not be *expected* to become explorers and innovators; rather, that they should implement already proven pedagogies. The General should not blame the troops for failing to provide leadership.

Innovation is often encapsulated in the design of software. The ‘under-developed digital teaching and learning resources market’ is a key point in this respect. The eLearning Credit scheme may provide a useful stimulus – though there must be doubts about the effectiveness with which this scheme has been administered. Insufficient measures have been taken to ensure that credits are spent as intended and the government has not been sufficiently prominent in promoting the scheme and ensuring good take-up.

While a market-driven approach is clearly the right way forward, it may not deliver the levels of innovation required, when the majority of teachers are shy, even sceptical, of the technology and on the whole poorly informed about its potential. When I asked a manager at RM why the company had not done more to provide more innovative learning management solutions, he replied that it was because there was very little demand for them. No-one should be surprised that a large public service is essentially conservative nor that commercial companies follow the lead given by their market.

The government has failed to use its considerable position of authority to provide leadership and to challenge this culture. In my own sphere of Learning Platforms, an excellent report, produced by SimulacraMedia for the Curriculum Online department, underlined the need for ‘stabilised specifications that ensure interoperability’. As ‘the benefits of a packaged learning object approach are not widely understood or appreciated’, the report recommended setting up research into a number of use cases and conducting a series of user workshops. The report was shelved; no trials were set up; and progress on producing stabilised specifications to ensure interoperability has been extremely cautious, civil servants repeatedly arguing that the department must not ‘get ahead of the market’.

An important barrier to implementing e-learning is the failure to launch successful learning management systems. Interactive content normally has the capacity to generate results data, which, given runtime interoperability, can be picked up by an LMS. The ability of LMSs to track student performance and competency, manage differentiation and progression automatically, and to allow teachers to control the assignment of work, allows e-learning to be brought under the control of teachers and integrated with traditional classroom teaching. This is an essential prerequisite for the implementation of e-learning in schools. See *The Need for Learning Management* in answer to Q11.

LMSs, insofar as they are available, have achieved poor penetration in the market. This is partly due to low levels of teacher understanding, partly to the corresponding rarity of learning content which supports runtime interoperability. This leads to a chicken-and-egg problem: LMSs require the content and the content requires the LMSs. There are several things that the government could be doing to try and break this impasse (see answer to Q14). Nothing has been done so far, apparently because the DfES tends to see ‘management’ as something that happens

in the school office, rather than as a crucial function of the teacher's job in the classroom. See further comments on the confusion of e-administration and e-learning in answer to Q6.

Q3. Is a unified strategy appropriate?

This is a difficult question to answer as it is not explained in chapter 2 what is meant by a 'unified' strategy. It is therefore unclear whether the title of this report is anything more than a tautology, any strategy being by definition unified to some degree. A coherent strategy which unifies and gives direction to the actions of the DfES is long overdue. It is a matter of concern that, seven years after the launch of the NGfL and one year after the Secretary of State took personal responsibility for this area, the department is still working 'towards' the definition of a strategy for implementing e-learning.

'Top-down' solutions

A unified strategy may not be appropriate if it means that 'We have to work towards reducing variation' (paragraph 35). Innovation, already identified as a key requirement, is the child of diversity. Clearly inadequate provision needs to be challenged; but at the top end, the government must not impose a straight-jacket on schools who wish to experiment; nor should it use its authority to spread 'good practice' without clear evidence that this is genuinely productive practice and not just fashionable practice. See answer to question 5, concerning the need for standards and *Raising Quality of Learning Content* in answer to Q11.

The 'grand projet'

Nor should a unified strategy lead to the planting grapes in Yorkshire on the grounds that they grow well in the south of France. There is a danger that e-learning models that work well in tertiary education will be transferred to secondary and primary education in the name of 'lifelong learning'; or that initiatives for 'joined-up government' will impose a host of priorities on education which have much to do with tidy administration but very little to do with education. To follow the writing analogy, 'joined up government' should only become an issue after each individual letter can be well-formed. Nor should the long list of partners included in this report be allowed to introduce further delays in the department's ability to devise and implement its own strategy. See answer to Q9.

Q4 Do you agree with our vision for e-learning?

The vision concentrates on fringe benefits: sharing best practice, allowing effective institutions to expand, sharing scarce expertise, providing better access to adult learners. This vision does not address the chief goal, which is to improve learning in core subjects in school.

The vision sees the computer as a communications tool rather than as a teaching tool. Learning may depend on collaboration, but self-reliance and individual study are also important. In the school environment, collaboration can be more easily and cheaply achieved using traditional methods. While 'virtual classrooms' may be important for adult learners who are often isolated, school-aged children normally have access to real classrooms. The role of the computer as a communications tool is therefore much less pressing in schools and the ability of younger children to participate in collaborative learning through an electronic medium is also much less developed.

The vision fails to cover the managed, interactive use of the computer to address core learning in schools. See *The Need for Learning Management* in answer to Q11 and the alternative vision described in answer to Q15.

Q5 Will the proposed action areas enable the vision to be realised?

In general, teachers do not have the time, resources or expertise to lead innovation in this field – though they should clearly be involved in advisory capacities in research and development programmes. New pedagogies have not entered the classroom because of the lack of software to support them. It is the software developer, in partnership with teachers, to whom one must look for innovation.

Care should be taken that training should not disseminate discredited pedagogical models (see comments on internet research in answer to Q2, and to collaborative learning in answer to Q4). On the other hand, if the government were to do more to define the scope and objectives of training, this could be used to support government policy. The launch of the eLCs should have been accompanied by a training programme to show teachers how to use the portal and to encourage teachers to submit content reviews.

The need to deliver smooth transitions between schools and colleges is a secondary consideration and should not be allowed to dictate the way in which e-learning is implemented in different sectors. Methods appropriate for FE or HE will often not be appropriate for younger learners, and must not be transferred on the grounds of a ‘unified’ strategy. See *The ‘grand projet’* in answer to Q3.

The assessment system is not a significant barrier to e-learning. See comments on new e-learning skills in the answer to Q10.

Technical standards to ensure interoperability are essential; but *quality* standards are a blunt instrument which do not encourage, but rather suppress innovation. See comments on *Raising Quality of Learning Content* in answer to Q11.

Q6 Are the proposed actions for leading sustainable development feasible and appropriate?

There appears to be some confusion in this chapter between e-learning and e-administration. Good links between Learning Management Systems (LMS) and Management Information Systems (MIS or IMS) have the ability to improve school management. But these e-administration improvements are a spin-off from, not essential to, e-learning. Too often, SMTs and LEAs think that by implementing e-administration, they are implementing e-learning. JISC’s definition of the difference between MLE and a VLE is unhelpful in this respect⁵, suggesting that ‘management’ is something that goes on exclusively in the MIS / school office, when in fact it is an essential function of the classroom teacher, and needs to be embedded in the VLE / LMS

⁵ JISC says that a VLE ‘is used to refer to the “online” interactions of various kinds which take place between learners and tutors’ (i.e. a vision of collaborative learning in the virtual classroom), while an MLE ‘is used to include the whole range of information systems and processes of a college (including its VLE if it has one) that contribute directly, or indirectly, to learning and the management of that learning’ – this refers mainly to MIS. There is no reference to the need for the teacher to manage students’ learning. The JISC’s definition recognises that ‘the world at large will continue to use terminology in different and often ambiguous ways’ – i.e. that the definition is not a correct reflection of how these terms are actually used. See http://www.jisc.ac.uk/index.cfm?name=mle_briefings_1.

which is responsible for delivering learning content to the student. This unhelpful model is exacerbated by the general currency of the term 'VLE', which, having been widely implemented in tertiary education, generally focuses on collaborative learning rather than teacher-management of e-learning⁶. See *The Need for Learning Management* in answer to Q 11.

The best e-administration system may be of little use if it relies on manual data entry by teachers – see *Improving the Quality of Management Data* in the answer to Q 15.

Sustainability is primarily about effectiveness: it will not be difficult to find funding for e-learning models which deliver real productivity gains. E-learning will stand or fall by what happens at the student interface. E-administration should grow out of proven e-learning solutions, not the other way around.

Q7 Are the proposed action areas for supporting innovation in teaching and learning feasible and appropriate?

Not creators but adapters

Paragraph 56 reiterates the expectation that teachers will become primary innovators, blaming the lack of tools to enable this to happen. The tools for creating learning content already exist (Toolbook, Flash, Authorware etc.), but they require considerable time and expertise to use effectively. Teachers should not continue to be encouraged to reinvent the wheel, producing resources which, by and large, will not be of a sufficiently high standard to be widely reused.

Given this caveat, teachers need to be given control over the way e-learning is used in their own classrooms. They have always been given this flexibility by the traditional text-book. Few teachers use text-books cover-to-cover, but select certain pages and certain questions, which they fit to their own classroom teaching.

Following this analogy, teachers should not be creators and designers of learning content, but adapters. Effective implementations of 'learning objects' should allow teachers to reuse objects, fitting them to a particular context by the setting of assignment parameters, and re-sequencing objects to create customised workplans. The DfES appears to have had a brief moment of enthusiasm for 'learning objects', running a seminar for content publishers at BETT 2003; but the initiative appears to have lacked follow-through or to have had any impact on the co-ordination of policy.

Unrealistic expectations of school children

Paragraph 57 envisages a more active and self-motivated kind of learner who takes responsibility for their learning. There may be a certain degree of naïve optimism in this model. While it is always possible to find children who will fulfil this expectation, and while the model may sometimes work well with adult learning, it would be safer to assume that school children will continue to require a high degree of supervision and direction.

⁶ For example, see Becta's paper on VLEs at http://www.becta.org.uk/page_documents/research/wtrs_vles.pdf, which gives negligible coverage to teacher management of learning.

Tendency to concentrate on marginal problems and special interests

The report is correct to suggest that e-learning can remove barriers to learning; but it should be remembered that excluded learners, for example, form a small minority of the school population. The vast majority of school children are not isolated and the principle benefit that they can derive from e-learning lies in improving pedagogy for the mainstream, not in improving access for excluded minority.

Point 20: 'Include within development funding on e-learning a focus on learners with special needs, to ensure greatest impact.' There are good reasons to focus on learners with special needs, but achieving greatest impact is not one of them. Greatest impact will be achieved by addressing the requirements of the mainstream.

Point 21: 'Use existing project funding to develop and disseminate more interactive diagnostic tests and remediation for learners with disabilities in literacy, numeracy, and communication.' It is unclear why further direct funding is justified on special needs, an area which is already comparatively well served, when the government is so keen to avoid direct funding in other areas.

Remote tutoring

Virtual classrooms may play a useful role in allowing very good teachers in specialist subjects to increase the range of their teaching. But real-time interaction is time consuming. Ever since the inception of universal education, there has been a shortage of teachers. It is unlikely that exceptional teachers would have time to tutor significant numbers of students, unless supported by pedagogies which reduce demand on teacher time in other areas. See *Increasing Interactivity* in answer to Q15.

Practice-based research environments

The proposal for practice-based research environments, bringing together teachers, educationalists, and commercial suppliers, is an important way in which government can stimulate innovation. It must amount to much more than a 'dating agency': it must be linked to proper funding and evaluation. Results should be given wide publicity in order to demonstrate to teachers how e-learning can improve the quality of their teaching and working conditions.

Other points

Point 15: 'Unify shareable e-learning resources and digital assets, through a national online databank, linking all sectors and publicly-funded organisations through intelligent search mechanisms'. This is a second- or third-order priority (though undoubtedly one ranked more highly by the long list of organisations on the look-out for public funding). There is a shortage not of information but of structured learning activities. These will be created by professional content publishers and not, by and large, by teachers, most of whom do not have the time to trawl through the archives of the nation's museums and libraries.

Points 17–19: 'Establish the appropriate evaluation methodologies'. Evaluation methodologies must be objective and carry authority. This section raises the suspicion that the evaluation will be

chosen to give the correct result. A ‘Focus on intensive evaluation of learning experiences’ – presumably meaning qualitative research, may help identify useful avenues for further research and development; but evidence from small scale, qualitative studies should not be used to attempt to challenge the authoritative, quantitative data from large-scale studies.

Q8 Are the proposed action areas for developing the education workforce feasible and appropriate?

The proposed action areas are well chosen, but the effectiveness of implementation will depend on timing and sequencing.

As already discussed, the NOF funded training programme was marred by the failure to specify what it was that teachers were to be trained in. The ImpaCT2 report has produced little evidence to suggest that many currently fashionable e-learning pedagogies are effective. The production of further guidance and training programmes should be triggered by the production of authoritative evaluations from the research environment proposed in paragraphs 64–67.

Q9 Are the proposed action areas for unifying learner support feasible and appropriate?

While the concept of ‘lifelong learning’, providing smooth progression from schoolchild to adult learner, is desirable, it is also important to recognise that the needs of the school-aged child are very different to the needs of the adult learner. For adult learners, access is more difficult; but the need for teacher control and management is much less pressing. The government ought to be cautious about transferring methods used successfully in tertiary education to secondary.

E-learning solutions must not be imposed on particular sectors in order to comply with the *grand projet* for lifelong learning. Rather, e-learning solutions must be developed which can be shown to deliver real benefit at each level. How to provide smooth progression between possibly quite different models, is a second-order priority.

Profiles and portfolios

Paragraph 82. Tracking student competency has the potential to make a significant contribution to effective differentiation – one of the big issues in improving education provision. However, it is open to doubt whether allowing ‘both summative assessment and information about personal aspirations and interests to be owned by the learner’, essentially a ‘feel-good’ argument, is sufficient justification for the complex administration involved.

Action area 33 (‘Establish the principle that all education and training organisations have the responsibility to contribute to a learner’s e-portfolio for lifelong learning’) ought therefore to be approached with caution. Electronic data is very easy to generate: quality information much more difficult. Government should not only adopt technical standards but also develop good practice guides for portfolios. Authoritative, codified information (e.g. Levels of Attainment) will generally be of much more use than large collections of work. To avoid imposing significant extra burdens on teachers, it should be possible for Learning Management Systems to generate data automatically from students’ online activities.

Action 35. Unique learner numbers ought to be straightforward to provide and will be useful. This is an example of the kind of simple but impalpable infrastructure which ought to have been put in place seven years ago.

Q10 Are the proposed action areas for aligning assessment feasible and appropriate?

The concept of ‘e-learning skills for life’ (paragraphs 93 and 94) blurs the distinction between ICT as a subject, an *end* of education; and ICT as a *means* of education. As ICT as a subject is already well-established and is generally the major consumer of hardware resources within schools, it would be more helpful if the term ‘e-learning’ were reserved for the use of ICT as a *means* of education; ‘ICT’ for the subject which includes the new skill-sets.

Blaming inappropriate assessment methods smacks of ‘shooting the messenger’. If e-learning is to convince people of its effectiveness, it must deliver improved results, measured by traditional assessment techniques.

The case that a completely new set of skills is required in the information age has been grossly over-stated in some quarters: internet and email are textual media which require traditional, transferable, literary and analytical skills to use properly.

Paragraph 95 demands that ‘whatever form of unitisation or credit framework may be developed, this has synergy with the potential of online assessment’. The aims of education should not be determined on the basis of what skills are easiest or cheapest to measure. Computers will have difficulty in marking serious analytical essays for a long time to come: this does not mean that essays should not be included as assessment methods for serious academic courses.

Considerations of ‘unitisation’ may be appropriate, if this means grouping learning objectives into units suitable for e-assessment and units not suitable for e-assessment; but the means of assessment should not be a consideration in determining, in absolute terms, the requirements for credit. If it is allowed to be so, then e-learning will be attacked correctly as a further step in the erosion of educational standards.

The ‘online administration of public examinations’ (paragraph 44) is a useful long-term objective. It is unlikely to be achievable, however, until considerable experience has been gained with low-stakes, formative assessment; and it is in this area that efforts should initially be concentrated.

Q11 Are the proposed action areas for building a better e-learning market feasible and appropriate?

Paragraph 100 states that the vision of the report is to allow ‘teachers and learners to access, use, create, and share high-quality learning materials’. This list misses an important middle ground which could be summed up with the words ‘re-use’ and ‘adapt’. See *Adapters not creators* in answer to Q7.

The need for learning management

The potential for introducing ‘formative assessment’ will be an extremely important benefit of e-learning. The word ‘assessment’ is so closely identified with summative testing that it might be better to look for a different phrase, such as ‘formative interactivity’, or ‘tracking’. The false dichotomy between learning and testing should be challenged. Everyone – and particularly

children – learn by engaging in activity, not by passively absorbing large quantities of ‘expositive’ content. We should be moving towards an assumption that all learning materials should provide integrated tracking as standard. This allows:

- Teachers, managers and parents to monitor student progress (allowing informed intervention as well as increasing student motivation)
- Students to receive immediate feedback
- Learning Management Systems to handle differentiation automatically
- Competency-based profiles to be generated automatically.

Producing performance data is of little use if learning content is not integrated into a Learning Management System. Much more progress needs to be made in raising standards of interoperability between LMSs and learning content: progress on the Learning Platform Conformance Regime has been slow; there is still no possibility for learning content to advertise its support for open standards on the Curriculum Online portal; and neither Becta nor Curriculum Online have yet taken any action to publicise these issues.

While it is true that ‘the pervasive ‘multiple-choice question’ format’ is limited, the bigger problem at present is not so much the predominance of multiple-choice questions, but the predominance of ‘expositive’ learning content which offers no interaction at all. Early efforts should be directed towards championing the causes of interoperability and interactivity – even if this might include the humble multiple-choice question. Later efforts can concentrate on driving up the quality of interaction. As well as the sophistication of interactive elements, it is also important that interaction should be closely integrated with exposition. Expositive material can be presented before interaction (as reference), during (as hints) and after (as feedback). Intelligent sequencing can also route students to extension or remedial units depending on performance. Even multiple choice questions can play a useful part if embedded in a sophisticated teaching system – and should not be demonised.

Paragraph 102 identifies the crucial problem of how to create an environment in which innovation is demanded by the market and welcomed when it appears. The cause of the problem, however, is not that the true wishes of teachers and learners are ignored by a long list of intermediaries, but that teachers themselves are ignorant and often sceptical about the potential of e-learning. This scepticism is perfectly understandable in view of poor quality of much learning content which they have been sold, and the large number of ill-considered and ineffective ICT initiatives which have been imposed on them over the years. It is exacerbated by the ideological reservations of many opinion-forming journalists and academics regarding ‘instructionalism’. There are widely held (if misplaced) fears that e-learning will undermine the human element of teaching. Teachers will learn about e-learning quickly enough when it can be demonstrated to work, and particularly when it can be demonstrated to improve their own working conditions, e.g. by saving much routine marking.

It would be wrong (and certainly too soon) to dismiss the demand-led model implemented by eLearning Credits. The statement (paragraph 102) that ‘We cannot rely on the consumer market mechanism to improve quality’ ignores the fact that, as a general principle, vigorous consumer markets have been shown to be incomparably more effective in driving up standards than regulation. There is much that the department could do to improve the administration of the eLC scheme to ensure that credits are spent, and spent as intended. The principle problem however, is not the market mechanism, but the fact that teaching profession has not yet been convinced of the value of e-learning.

The government's role should be to take a more prominent part in leading opinion amongst the profession. It is essential, however, that government publicity in this area should be based on high-quality information and authoritative evidence and that it is subject to lively debate. The profession must be led to e-learning by a process of persuasion, not by a process of regulation.

Raising Quality of Learning Content

Paragraph 102 states that 'We have no 'kitemarking' system and this makes it difficult for parents, teachers and advisers to make appropriate judgments of quality.' Kitemarking is an exercise in sweeping at the rear: when what is needed is path-finding at the front. Unless positively dangerous, stragglers are better ignored. Innovation can only be harmed by the imposition of top-down solutions. The wording of the strategy document here is surprising given the recent statement by the Secretary of State that 'I am very wary of going down the kite-marking route, because I think that if there were to be some state form of approval of certain types of software rather than other types of software, I think we would be in quite dangerous territory for all kinds of reasons.'⁷ There is a pressing need for technical standards to ensure interoperability; but the issue of quality should be handled more informally.

TEEM (Teachers Evaluating Multimedia) is a worthy but uninspired attempt to provide effective reviews of learning content. Reviews are generally anodyne. TEEM should be integrated with the Curriculum Online portal and, learning from sites such as Amazon, reviews should be invited from any user, should not pre-censored and should encourage participation by using devices such as star-ratings, awards, comparative evaluations, 'top ten' rankings and discussion forums. Training programmes could be used to get the ball rolling.

One of the most significant contributions that the government could make towards encouraging the production of more advanced learning content is to raise awareness of the potential for managed learning and make more rapid progress on standards for interoperability. See comments on *The Need for Managed Learning* in answer to Q11.

Q12 Are the proposed action areas for assuring technical and quality standards feasible and appropriate?

See above.

Q13 Have we identified the correct partners for the actions?

It appears to be a comprehensive list. A cynic might suggest fewer partners and more action.

Q14 Which actions do you see as the priorities?

1. *Encouraging innovation* through the practice based research environments. These must provide match-making (teachers, university departments, industry and spending authorities), funding, evaluation and publicity. Results should inform guidance and training programmes (point 5).

⁷ Speech to the Industry Club on 3 June 2003. See http://www.dfes.gov.uk/speeches/media/documents/SoS_transcript_030603.doc.

2. *Raising standards of interoperability* by:
 - Ensuring that there is a thorough review of the Learning Platform Conformance Regime, scheduled for this April 2004.
 - Ensuring that rapid progress is made towards allowing content providers to advertise SCORM compliance on the Curriculum Online portal.
 - Ensuring that rapid progress is made in upgrading the Common Basic Data Set (CBDS) to satisfy the requirements of LMS/VLE-MIS interoperability.
 - Setting up use-case studies, as recommended by the report by SimulacraMedia, to demonstrate the technical feasibility and pedagogical value of interoperability between LMSs and learning content.
 - Ensuring the Curriculum Online's Content Advisory Board imposes a clear requirement that the BBC should produce content that supports both content packaging and runtime interoperability, and follows a packaging model which allows disaggregation.
- 3 Foster higher quality, more accessible, more engaging and more participative evaluations of learning content with the aim of educating the market and encouraging more discriminating, better informed purchasing.
- 4 Tightening up the administration of the eLC scheme, to ensure that credits are spent as intended.
- 5 The DfES should take a more proactive stance to lead teacher opinion, using information campaigns and training programmes.

Q15 In your experience, what are the most significant achievements of e-learning?

- 1 *Increasing the amount of interactivity* in students' learning experience. I am not aware of any research that has measured the amount of time a student spends in educationally significant conversation with a human teacher, but it would probably average at seconds, or at most a minute or two per day. Given that we 'learn by doing', particularly when our actions give us 'knowledge of results', this lack of interactivity during the school day leaves a huge potential for improving the effectiveness of education. No-one would claim that interacting with a computer is comparable to interacting with a teacher (though the government's report is correct to stress the need to improve the quality of interaction offered by learning content). But given the greater availability of computers, perhaps their greater patience; and given that much preparatory learning concerns straight-forward factual material, rather than advanced insight, there is a valuable place for computer-based interaction, to complement teacher-based interaction, which is a very scarce resource. Computers can often perform a 'baby-sitting' function. In my experience, this allows the teacher more time to engage in one-to-one tutoring, standing on its head the argument that computers 'depersonalise' teaching.
- 2 *Improving the efficiency of differentiation.* The incorrect pitching of work is a major source of inefficiency in schools. The ability of the student to absorb a particular learning point is often determined by the extent to which that student has mastered the prerequisite skills and knowledge. Exposing students to teaching which is incorrectly pitched is not only a waste of time, but is a major source of alienation. Since the government has placed more emphasis on examination results, many schools have reintroduced streaming and setting. But while these systems may well be more efficient than mixed ability methods, they have their

disadvantages in terms of the complexity of timetabling and the stigmatisation of some children and are inevitably crude. The computer can manage differentiation automatically, leading to a significant reduction in administration for teachers and timetablers, while improving student learning and motivation.

- 3 *Improving the quality of management data.* Given integration of learning content with an LMS, performance and competency data can be made available immediately to senior management, whole teaching teams, parents, and other support agencies. I worked at a sixth form college which introduced a system for electronic registration; but the system, which cost tens of thousands of pounds, was withdrawn within a few months because the staff could not be induced to enter data reliably. Performance and competency data are essential management tools, yet any system which relies on manual data entry has feet of clay. Learning Management Systems ensure that performance data is tracked from source, with the same potential significance in schools as the barcode has had in the supermarket.
- 4 *Saving teacher time* by reducing routine marking and improving the preparation of students for lessons. Teacher shortages are endemic in a system offering universal education. The time of good graduate teachers is a precious resource that should not be wasted on routine marking of factual answers, or on taking lessons in which students read around the class or in which basic factual information is presented. I taught an A level history course which was heavily based on a demanding set of documents. Much lesson time was spent laboriously working through these documents, which students were generally unable to understand on their own. In a trial of a prototype of Alpha LMS, I wrote an extensive bank of multiple choice questions, complete with hints and feedback, which guided the students through the documents and pointed out the most salient points. Student preparation for lessons could be checked automatically. With the students properly prepared, lessons could adopt the style of discussion seminars, where the time of the graduate teacher could be much better employed. The A level results for that year were the best on record for the college concerned.
- 5 *Deploying visual resources* to illustrate abstract points. An abstract point, described orally, is often difficult to comprehend without a concrete example or diagram to illustrate it. Many subjects deal with processes, which the animation is ideally suited to demonstrate. While video has long been available to schools, it has by itself had a limited impact (1) because it is a very passive medium, and unless students are actively engaged with the content, their attention span is limited, and (2) the video tape is clumsy and inaccessible. The effect of computer-based 'multimedia' has also been limited. But playing its part alongside other key components of an e-learning system, such as good teacher management tools and rich interactivity, multimedia elements have an important contribution to make.

Q16 What do you think should be the respective roles of education leaders, Government and its agencies and the ICT industry in taking the strategy forward?

Government

- 1 To set the general framework within which industry should operate. This should include the requirements to provide accurate and objective information about their products, including the extent to which they support open standards. In this regard, I believe the government has been insufficiently robust. The regulatory framework should be very cautious about

making judgements on quality or appropriate pedagogy. This judgement ought to be left to the teacher.

2. To continue to implement a substantially demand-led funding model, as exemplified by eLearning Credits. Comparatively small amounts of funding should also be provided to support innovative projects, including those initiated by commercial companies, to set up evaluations and proof-of-concept trials.
3. To use its leadership position to raise the level of interest in this field and to encourage a more discriminating approach to learning content by purchasers. This will include the publication of results from practice based research environments, ensuring that teachers have access to effective evaluations and can participate in a lively debate about e-learning.
4. Set clear and detailed objectives for training programmes.

Industry

Will take the primary responsibility for innovation and providing high quality learning content, software and services.

Education leaders

Education leaders should be cautious about imposing top-down solutions, which often turn into exercises in administration, rather than in learning.

- 1 They should also take a leading role in engaging teachers in a vigorous debate about e-learning strategies.
- 2 They should try as far as possible to devolve spending decisions to front-line teachers.
- 3 They should act as ‘talent-scouts’ for the practice-based research environments, identifying opportunities for trials, which may often arise as a result of small-scale, innovative practices amongst front-line teachers.

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Note. The word ‘Pedagogue’ is used incorrectly in place of ‘pedagogy’ throughout the report. It is a little disquieting that the Department for Education should be so keen to publicise the ‘wide range of pedagogues’ in the education service, or to be seen to be ‘Embracing the new pedagogues’.