

# Ten Pedagogic Principles for E-learning

---

Pr. John Anderson and Pr Robert McCormick

**06 December 2005**

This paper follows from the preceding paper on the common quality framework for e-learning. It focuses upon the pedagogic aspects of the framework and articulates a set of ten core principles which express, in an economic and elegant fashion, the underpinning values that can apply to a range of expressions of e-learning (whether in the face-to-face classroom, or online, or both), and be meaningful in the point of view of a range of audiences – designers, teachers and learners. They relate directly to six of the elements in Becta's common framework for the quality of e-learning described above, namely: curriculum fit; content design; planning; learning; assessment and teaching.

The judgment of pedagogic quality has to be “principled”, in that any particular decision to create and use e-learning should be underpinned by some agreed principles of good teaching and learning. These principles may be derived from: particular views of the purposes of education (e.g. that it should be inclusive); sound theoretical and research-based ideas of learning; distilled practice as found in educational institutions. There are deliberately a limited number of principles, but the way in which the various actors in the process (e.g. e-learning designers, teachers and learners) might address these principles will be different and so here we show the building of guidance and criteria for judgment around the principles in order to best suit the actors or those supporting them.

There is an implicit assumption in this principled approach that the more of the principles that are embodied, the better the quality of the pedagogy; and the lower the quality, the fewer. It is acknowledged that e-learning developments may not embody all of the principles, but that the supporting teaching and learning activities could address ‘missing’ principles. These missing principles should be addressed in advice to users (whether teachers or learners). This approach recognises the interdependence of ‘design’ (of e-learning materials and environments) and ‘teaching’, in that the designer is able to afford the user a wide range of opportunities in the design and where she does not, the user has to compensate for the limited affordance in other ways. There may well be exceptions for certain types of e-learning situations and products, such as the use of ICT productivity tools (e.g. web design and publishing packages), which have a specific design focus and are purposed to be used in a wide variety of different ways by the user; in this case it may be that only a limited set of the ten principles are relevant.

The principles should be able to help designers to engage in the process of constructing e-learning material and associated activities in a way that will enact sound principles of pedagogy; in as much as we have them (we don't know everything). They should also be able to help teachers in the process of choosing resources, designing teaching and learning activities that use them, and supporting such activity while it takes place. (The division of designers from teachers does not preclude teachers from being designers, but they are in this case acting as designers). Nor does it assume that digital materials or environments are solely determining the pedagogy; the principles are general enough to guide a teacher, for example, in constructing teaching and learning in general, though clearly the context of these principles are to support the use of e-learning of a variety of kinds. All the actors involved (designers

and teachers) must address the needs of the learners. However, learners are not passive recipients, indeed, one of the pedagogic principles draws on the idea that learners have agency. Learning does not take place without the learner exercising this “agency”; a passive learner exercises no agency and hence learning will be limited. Passive learning is the opposite of what happens in a genuine learning situation, where learners construct their knowledge. If they don’t do this knowledge construction, they don’t learn, because knowledge cannot be given to them, so the basic argument in constructivism goes. This implies not just activity but also ownership and involvement and therefore lies at the heart of the impact which we believe technology ought to have on teaching and learning. Digital learning material, for example, is in danger of encouraging activity (such as clicking around screens), without the necessary ‘ownership’ and with little involvement in thinking. Equally a teacher who assumes that the ICT will do all the stimulation of the learner to think, without creating opportunities to encourage and support that thinking, is likely to overlook this encouragement and support of the learner’s agency. The consequence of this learners’ agency is that they too have responsibilities and imperatives to develop their own learning. E-learning must support them in this, whether through the electronic environment, materials or the work of the teacher.

We believe that there is a reciprocal relationship between the extent to which a range of pedagogic affordances have been built into the design of e-learning and how well that resource is used by practitioners. In other words, the greater the affordance in the design, the greater the potential for pedagogic quality. (We say that the resource is ‘so good’ that it can’t fail to promote the best practice and be well used). When the design affords narrower opportunities for use it leaves the practitioner with more to do in planning the educational experience and working with the learners to make effective use of the product. (We say that a good teacher can make good use of even the most unpromising resource or environment). It is the point of tension between e-learning design and pedagogy that is enacted by the teacher, which is the fulcrum for this see-saw relationship. We have sought to capture this tension in our 10 principles.

We have tried to make the principles which follow:

- simple, comprehensible, compelling and therefore easy to use;
- comprehensive and individually distinctive, one from the other (and therefore ‘core’(1)), however, they are inter-related and not independent from each other;(2)
- consensus-based – by being developed and applied through debate and partnership;
- promoting of quality consciousness(3) and supportive of quality self-assurance;
- context-sensitive, and founded on the needs of learners, practice in school classrooms, on moves toward whole-school improvement and on professional development settings for teachers;
- amenable to approaching quality assurance as a professional development process;
- part of a family of quality for learning in schools;
- complementary and supportive of self-improvement and innovation processes.

The ten principles that follow are not carved in stone, but are offered to open a dialogue and help us reflect on the role of the learning citizen in the 21st century.

### **Principle 1: match to the curriculum**

The pedagogy should be matched with and aligned to the appropriate (UK) curriculum through:

- clear objectives (at an appropriate level and form of specification);

- the relevance of content covered;
- the appropriateness of student activities;
- the nature of the assessment (where this is present).

(It is accepted that there may not be a simple division among some of these elements; for example, the student activities may have assessment elements or be part of the ‘content’.)

### **Principle 2: inclusion**

The pedagogy should support inclusive practice seen in terms of:

- different types and range of achievement (including special needs);
- physical disabilities that can be particularly supported by e-learning (e.g. those with visual impairment);
- different social and ethnic groups;
- gender.

### **Principle 3: learner engagement**

The pedagogy should engage and motivate learners. This engagement should be evident in an ethos of being:

- educational, i.e. have a ‘worthwhile’ educational aim, and not just be used to occupy or entertain learners, although it might employ ‘game-like’ approaches to learning;
- motivating, such that it is both enjoyable for learners and makes them want to continue using ICT or want to carry on with learning the topic;
- such that it does not produce adverse emotional reactions that are likely to cause reduced motivation to learn in general, or to use ICT in particular;
- motivating, such that it improves the class atmosphere for learning and makes it a good experience for teachers and learners alike.

### **Principle 4: innovative approaches**

It should be evident why learning technologies are being used, rather than a non-technological approach which achieves the same end as effectively. Digital forms should be used where they bring an innovative approach which cannot be achieved in any other way. E-learning should, in other words, be fit for purpose. The design and implementation of the digital material or environment may also be innovative, in the sense that it takes an approach that is new and has not been taken either by previous non-technological or by digital material for this particular topic or area of the curriculum.

### **Principle 5: effective learning**

This principle can be demonstrated in a variety of ways:

- by the use of a range of approaches that will allow the learner to choose one that suits her, or can be personalised to her, or will extend the learner’s repertoire of approaches to learning (such as ‘learning how to learn’);
- by providing empirical evidence of effective outcomes of the pedagogic approach (including the digital material);
- by satisfying a number of the characteristics of good learning (learner agency; learner autonomy; encourages metacognitive (including high order) thinking; enables or encourages collaboration);
- by providing authentic learning (authentic to situations outside school and to the learners’ perspectives and situations), and that also exhibits multiple perspectives on a topic (this could be seen as another aspect of authenticity).

## **Principle 6: formative assessment**

The pedagogy should provide formative assessment, i.e. assessment that is primarily aimed at improving learning. This may be achieved in a number of ways:

- by providing rapid feedback that helps learners to see how they can improve and what they must do to improve;
- by providing opportunities for peer assessment, with appropriate understanding of the criteria or standards of performance required;
- by providing opportunities for self assessment, with appropriate understanding of the criteria or standards of performance required.

## **Principle 7: summative assessment**

Summative assessment here is understood as that which is used to grade students for guidance as to, or selection for, future educational or work opportunities. Although not all e-learning will have summative assessment (but it should have formative assessment), where it does, it must be:

- valid and reliable (i.e. assess what is aimed at in the objectives, and do this in a way that can be demonstrated by things like expert views, or ways of testing construct validity; give consistent results for particular learners or other users);
- comprehensible by teachers, learners and parents (as appropriate);
- able to deal with a range of achievement levels;
- free from adverse emotional impact on the learner.

## **Principle 8: coherence, consistency and transparency**

The pedagogy must be internally coherent and consistent in the way the objectives, content, student activity and assessment (where present) match to each other. It must be open and accessible in its design. This implies that the components of e-learning should each match and that the match should be transparent in its intention; for example, the activities should be consistent with the objectives and the assessment should assess these objectives (and not unstated or unknown ones). It should be clear to the user what they are expected to do.

## **Principle 9: ease of use**

As well as being transparent in its intention, e-learning should be transparent in its ease of use through:

- being open and accessible;
- being intuitive and not requiring guidance on use (for either the teacher or the learner);
- the provision of appropriate guidance for the learner or the teacher and, in the case of the learner, should not require extensive training or instructions that are not themselves part of the educational aims of the e-learning;
- appropriate assumptions about the ICT skills of users (both learners and teachers), or the provision of straightforward guidance on this.

## **Principle 10: cost-effectiveness**

Technology solutions need to be justifiable, affordable and the costs sustainable. Using learning technology is not a cheap option for enhancing educational opportunity, broadening choice and raising standards; nor is it a 'silver bullet'. The investment needs to be justified in terms of cost benefits and savings through efficiencies of scale, or in terms of affordance of pedagogic opportunities and enrichment, or in meeting educational needs and goals which are not achievable in other ways. However, as with many of these principles, there are some formidable definitional problems, about what to include in the costs (or indeed the benefits).

## Conclusion

The way in which the various actors in the innovation process (designers, teachers and learners) might address these principles will be different, and so in the UK we are exploring an approach which involves building guidance resources to help educate e-learning designers and users. We believe that while comprehending the pedagogic aspects of quality is a wholly contextual activity, these core principles are sufficiently generic to be relevant across European school systems despite the difference in emphasis, from country to country, on the approach to teaching and learning. We believe that this work needs to be set firmly in a European Union and international context, where appropriate and relevant. The Lisbon agreement sets us some challenges for lifelong learning and the development of independent learners. The achievement of these goals is going to require a much stronger recognition of, and focus on, pedagogy than is currently typical across Europe. There are instances of some excellent thinking, research and practice relating to pedagogical quality. We now have an opportunity to bring all of this work together and, as a consequence, enable some powerful learning. Becta would be pleased to discuss, with potential partners in other national jurisdictions, and with European and international agencies and partners with an interest in the pedagogic aspects of elearning, the potential for taking this work forward in the spirit of cooperation and, potentially, of genuine collaboration.

1 The specificity will come through their exemplification in the various approaches to e-learning.

2 Particularly the two principles related to assessment, which is singled out because, in general, e-learning has not been good at implementing assessment successfully. Designers, teachers and learners are likely to have most difficulty in seeing the issues involved or in knowing how to implement good assessment.

3 *Quality criteria of online learning resources*. Liisa Lind. National Education Board of Finland. 10th May 2005