Context, Content and Commodities: e-Learning Objects.[i]

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Abstract: This paper is about one of the central dilemmas of e-Learning: can we separate content and context, and how should we manage the relationship between the two? Or to put it another way, are Learning Objects just commoditised learning? With the growth of e-Learning over the past few years, learning objects have come into their own. They are the component units of e-Learning, and in principle can be combined in a myriad of ways into many different courses: Learning Objects are the commodities of e-Learning – they are exchangeable across courses and contexts, and should provide a new and efficient common currency for teaching and learning. If they do, they might be the answer for the administrators and managers of education and training. But will they be the answer for the learners and teachers? e-Learning provides quite new *affordances* and learning environments which can be understood with help of complex adaptive systems theory.

Keywords: Learning Objects, content, context, granules, meta-data, meta-content, meta-competencies, affordances, complexity.

1. Introduction

e-Learning has come to mean different things to different people. For the purposes of this paper e-Learning will be broadly defined to include e-courses, e-training, e-spaces, and e-publishing (on-line and off-line). However, Learning Objects ('LOs', or as I would call them 'LOdules') will be the focus of this paper, and they are mainly to be found in on-line courses of some sort. Learning Objects are often defined as 'chunks of learning', but as Stephen Downes says, "people should stop thinking of learning objects as though they were classes or lessons or some such thing with built-in intent. It is preferable to think of them as a greatly enhanced vocabulary that can be used in a multidimensional (as opposed to merely linear) language" (2003). This is more useful, as it shifts the emphasis from the level of the *LO* to the level of the *course*, which is where the value is, and where learning occurs, and it shifts the emphasis from *sequence and bits* to *connectivity, networking and context*. But how can LOs be designed, constituted, stored, accessed, and processed so that they can indeed become this "greatly enhanced vocabulary" for teaching and learning? That is what this paper will explore.

2. Learning Objects

2.1 What are Learning Objects?

Learning Objects are:

- The smallest units of stand-alone learning. They constitute Downes' *vocabulary,* and they are the equivalent of *words* or perhaps *phrases* – certainly *collocations* – small units that can be repeatedly used in different ways in different contexts for different purposes – the *molecules* of the chemistry of learning.
- Units of learning that include learning objectives, content, competencies, activities and even assessment.
- Units that are formatted as content, which is separated from information about its presentation and its description. This information is captured in meta-content tags, in XML. Importantly, these meta-content tags describe the *uses* of the LOs, rather than their content. Because content and meta-content are separated in this way, the same content can be presented in more than one way, on more than one display technology, and the content and meta-content can be changed and updated independently of each other.
- Units that can be re/arranged to fit the context and the needs of learning – even down to individual learners - to deliver *just-in-context* learning, or learning which is just-in-time, just-for-me, and just-enough.
- Stand-alone units (or *events* as I will describe them below) that can be arranged in a whole spectrum of ways: from what could be called a *random grazing*[1] approach where you proceed from any LO to any other LO right across to a lock-step sequential approach, possibly with the addition of a tiered hierarchy of LOs, modules, and the 'course', as we will see below.

Downes (2003) reminds us however that "the content is not contained in the parts, it *emerges* from the combination of the parts. The use of learning objects consists not in stringing them together in a narrative, but in *arranging* them, like a painting, an orchestra, [or] a sand castle". Downes focuses our

[1] *Random grazing* is borrowed from the Ugandan AIDS campaign, which advocates *zero grazing*, or keeping to one partner – keeping to the straight and narrow.

attention on the inter-relatedness of meaning – the well established semiotic principle that meaning is to be found in the *relationships between* words, sentences, or Learning Objects. He extrapolates this to the *content* itself, which might seem like he is stretching it a bit, but he makes a useful distinction, as we will return to in 1.2.

2.2 Granules

What then are the components of Learning Objects? Learning Objects are combinations of what are generally called *granules.* These include photographs, texts, animations, graphics, matrices, statistics, spreadsheets, workshop exercises, assessment questions, articles, video and audio clips, through to case studies that might be quite substantial. These are even more stand-alone, without being 'designed' to be stand alone - they occur in the same form in other contexts, and are highly amenable to combination. They do not generally have any assessment, learning, or pedagogic implications embedded in them. They appear quite sensibly in many other 'non-learning' contexts. By the same analogy above, granules could be said to be the *atoms* of the chemistry of learning. Granules are clearly 'content' or 'raw content', and need to be described in repositories as such – as content. They have to be specifically situated within a particular learning context (for instance a LO) to be directly relevant to learning.

Learning Objects, in contrast to granules, are not *learning content* in the same sense at all. We can distinguish LOs from granules by calling them *learning activities,* or even more broadly, *learning events.* In these learning events, learners are introduced to a (micro?) topic, given tasks to carry out, asked to interact with several sources, form some opinions, views, and perspectives – and then to engage with other learners. Learning Objects *always* have assessment and pedagogic implications embedded in them, including interaction with other learners. They may be formally assessed on their own. They have to be very specifically designed as 'stand-alone' units, and in contrast to granules would look quite out of place in non-learning contexts.

2.3 e-Learning modules and courses

An e-Learning module is a set of LO's, within a theme &/or sequence, lightly or firmly linked, and specifically assessed on its own. Module assessment may or may not be the sum of the assessment of several learning objects. Modules are combined to form courses. Course assessment similarly may or may not be the sum of the assessment of several modules. Courses often have an *end of course assignment* as an overall and summative assessment, in addition to the module assignments. This often takes the form of a meta-assignment, which is a commentary and analysis of some of the module assignments, presented in a *portfolio*. Of course this *tiered hierarchical* structure would restrict what I referred to above as a *random grazing* approach, in which the learner is entirely in control of how they proceed from one LO to another. What is at issue is not how open or hierarchical the learning environment is, but what the balance is - *for particular learners* - between opportunity and confusion, and between intuitive navigation and embedded structure.

3. Context and content

3.1 Commodification

It has often been said that Learning Objects are just part of the further commodification of learning, and that this represents the end result of continued attempts to strip any context from content, for purely financial reasons, to the detriment of all quality and in-depth learning. In other words, it is said that learning managers separate content from context and delivery only because that makes the work of materials designers easier and cheaper - as they can literally transcribe content from one course (and contract) to another - and because it enhances the rationalisation of the production of educational content and learning, as well as the further casualisation of educational professionals. But pedagogically we have to ask the questions from the learner's point of view: do the LOs 'add up' to anything? Do LOs increase the opportunities for creativity, exploration, and effective learning, or do they restrict and impoverish the learning?

3.2 Information and knowledge

There has been a long and interesting debate as to whether you can separate content and context (see for instance Snowden 2002). One way to approach this is to take an "each to its own" approach – i.e. to distinguish between *procedural information*/algorithms which are by their very 'scientific' nature decontextualised, on the one hand, and *strategic knowledge* which is about how we *fit* procedural algorithms to specific contexts on the other hand. 'Fit' includes institutional, financial, technical, social, cultural, and personal factors.

'Fit' is all about context. In this way we can distinguish between two different domains of competencies – on the one hand a set of competencies which are decontextualised, and on the other hand a set of *meta-competencies* which find, design and operationalise the *fit* between these decontextualised competencies and particular contexts. That gets rid of the false dichotomy between contextualised and decontextualised competencies, by demonstrating that the relationship between procedural information and strategic knowledge is cumulative and iterative, and not a dichotomy at all.[2]

If we follow this line of thought, we can distinguish between those procedural-information-type algorithms and their associated competencies, which are in principle decontextualised on the one hand, and on other hand the competencies which match and fit procedural information to contexts, as strategic knowledge. Knowledge in this sense is about strategy, design, appropriateness, risk assessment, risk management, and executive decision making, all of which are about relationships, alliances and contexts. Procedural information is in contrast about skills, administration and compliance, which are portable across contexts and relationships (they may not be appropriate in all contexts, but that's a separate issue). Knowledge is then a meta-competency: cumulative and super-ordinate to skills and procedural information.

3.3 Skills Objects and Knowledge Objects

The distinction between *procedural information* and *strategic knowledge* enables us to distinguish between those kinds of LOs that could quite reasonably be decontextualised, (commodified if you will) and those that certainly can not. This distinction enables us to examine the nature and purpose of particular LOs, to see to what extent a substantial degree of contextualisation will be necessary within particular LOs *before* we get to Downes's issues of orchestrating the component LOs into a composite learning *event*. It might be useful to subdivide Learning Objects into *Skills Objects* and *Knowledge Objects* along these lines. If we do, we can, broadly, divide these learning *activities* into those *Skills Objects* which are probably amenable to formats such as Computer Aided *self*-Instruction [CA(s)I], and those *Knowledge Objects* which probably require an *interactive discussion* forum format. However, taking into account the complexity of applying skills in any context (which includes as I said above, factors such as: institutional, financial, technical, social, cultural, and personal *fit),* it is likely that in most cases even the most narrowly defined Skills Objects will also benefit from the addition of some measure of a discussion forum format as well, where that is possible.[3] These distinctions allow us to operationalise learning in stages, and to arrange the best blend of learning objects (Skills Objects and Knowledge Objects) as well as the modes of learning (interactive and self-instructional) accordingly.

Commodification is built into most of what we do, and who we are: science and technology, as well as finance, is premised on decontextualised algorithms, information systems, credit, techniques, and technologies. It is a very powerful meta-discourse, which allows for unprecedented levels of efficiency, commerce, sharing, and global interaction. We are very good at it. What needs some attention is the strategy and relationship part – knowledge: how we use procedural information within relationships and contexts: what might be called *intelligent management* rather than just *strategic knowledge.*[4]

[2] And this distinction does not relate to the tacit/implicit distinction at all. A lot of knowledge is implicit or 'tacit' because it is knowledge which 'fits' from a personal perspective, which by definition is difficult if not impossible to share.

[3] This is one of many points in the design and management of learning events and environments at which you need to decide whether to follow the money or the pedagogy. Financially, CA(s)I is cheap to administer – the cost of distributing on-line or CD based courses is minimal, whereas the cost of providing interactive learning is certainly not cheap. This applies to both face-to-face and virtual learning, although virtual learning can achieve some economies of scale that will never apply to face-to-face learning. Blended learning is one way to try to get the best of both worlds.

[4] There is of course another layer beyond algorithms and strategic knowledge, namely programming. Lash (2002) points out that society is currently best described in terms of *configurations* of networks, many of which are virtual and, along with Drucker (2002) and Castells (2002) he points out that we are already moving beyond the *networked economy* into the *programmable economy*. Programmability offers further potential and further challenges, beyond algorithms. Programmes offer the possibility of unlimited access to potentially free copies of fully operational *programmes* which when fed into the right machine could produce, for instance, a gene sequence of your choice, or eventually even a clone of your choice. It is a whole set of *operational competencies* that are commoditised within programmes – an quantum leap up from mere algorithms, with a flavour of strategic knowledge embedded too. A totally new level of commodification, and new challenges and opportunities for learning and for society.

In more practical terms, we might also distinguish other subsets of 'learning objects', according to their purposes: Information Objects, Assessment Objects, Networking Objects, etc. The point is that we need to have an understanding of the degree to which it is appropriate to decontextualise some learning activities and competencies, and not others. And it is a matter of *degree* – much as I have argued that there are many competencies that can in principle be treated as decontextualised, I would also argue that the *application* of *any* competency is a highly contextualised matter. Which means that the deployment of LOs remains a matter of *orchestrating* them within a learning context and, following Downes, a work-life context too, which is even more complex. The question is: How?

4. e-Learning courses

4.1 Courses and events

The prevailing discourse of education and training is very instructive. We talk of *courses,* and ask people to *register for a course.* The metaphor is that of a race, or a rite of passage - probably with obstacles along the way which you have to overcome or endure, and for which you will rewarded if you complete or *run the course* from end to end. Key embedded concepts are: *sequence, pre-determined route, and end point or finish.*

Educators seem to be somewhat confused and caught between paradigms: most of us still talk of *constructivist approaches* to *courses,* which is an extended oxymoron as we will see below.

Downes (2003) presents a refreshingly radical alternative perspective. He contrasts a *narrative* structure with an *arrangement "* like a painting, an orchestra, [or] a sand castle". The *orchestral* metaphor is useful, although the *sand castle* has interesting potential too. Much of the design and even vocabulary of e-Learning, and *connected learning* more broadly (on and off-line), has changed. We talk of 'e-moderation' and even 'e-tivities', and in the process have moved on from *facilitated* learning to *moderated* learning.

So what is it that has changed in the modes of teaching-and-learning? (They are now inextricably intertwined, just as information and communication are). For lack of a better term, e-Learning – and certainly discussion-forum-based e-Learning – is now 'run' as *learning workshops.* They are partly like *orchestrations* or *performance,* but they are even more like participatory *workshops* in music, drama or art.

These *learning workshops* have the following characteristics:

- They are performative and inclusive.
- The 'audiences' or 'clients' are the major performers, not the designers, moderators or 'providers'.
- The role of the moderator is to create a learning environment, to set up the initial group dynamics, and then literally to 'moderate' it – to shepherd it – to watch the way it develops and grows, to nudge and stimulate it, and offer 'corrective suggestions'.
- The development and interpretation of the learning programme or *score* (to use the musical metaphor) is best seen as the exploration of a set of complex *affordances* than a set of tasks – even if there are very specific milestones and signposts. Modern musical scores might be instructive for e-Learning designers and developers, particularly the more experimental music of the 1970s and beyond.
- The performance of an e-Learning workshop is, like all good participatory performances, unpredictable, even though it might be very clearly recognisable as an instance of a particular 'course'. Just as every performance of a musical score (particularly modern scores) is different, and is often designed to be different, so too each iteration of a learning workshop should be different. The design of the learning environment should maximise this potential for surprise and creativity where possible, as learning is about personal and collective growth – both intellectual and social, above and beyond the skills that are learnt. The moderating and management paradigm for learning workshops is more one of watching for *emerging properties* within a complex self-adaptive systems framework, rather than checking for compliance with benchmarks in an administrative framework.
- It is much more appropriate, then, to *invite people to participate in a learning event* rather than *market the opportunity to register for a course*, and it would be an interesting benchmark of how *on-message* educational administrators and marketing departments are (or are not) to see if and when they agree to this change of register, if not a change of discourse. The 'learners' might more usefully be referred to as

'participants', doing away with the terms 'learner' and 'student' altogether!

- A useful introduction to a participative learning event would be to talk about other participatory events that people have experienced and valued before, and what worked best for them, regardless of whether these events had anything to do with education.
- Assessment tools need to be developed to value even the micro contributions that spark off emergent properties rather than (just) valuing large chunks of predetermined 'assignments'. In principle a single generative (micro) intervention in a learning workshop should be able to be validated as sufficient to indicate competence across the 'course' as a whole based on the value of the *emergent properties* that result[5] .

4.2 Absences

Part of good design - typographic design anyway - is about the design of the 'white space' – the absences in the layout. It is possible to design a course which uses LOs as content 'nuggets' within a carefully designed set of absences – the spaces between the LOs. That would be something different from the 'clunkiness' of random LOs knocking about an over-commoditised course. So one should keep in mind that the absences could/should be part of the design of the learning environment.

4.3 Constructivism

Part of the debate around LOs in a 'course' which I am currently e-moderating at the OU (H806) was clarified for me in the discussions on how one could map out the content of one of the modules. One way is to construct a personal perspective (schema/mindmap) of the module from your point of view as a participant.[6] The course in question groups LOs in themes, and these are grouped into modules, which make up the course. This tiered hierarchy offers a course structure, or framework. However, this did not necessarily offer too many pointers as to how the participants could contextualise the LOs within their own work/life concerns. Two of the participants created mind-maps of the module that were very different. One participant said that he had found it exceedingly frustrating up to that point (the last of four modules in the course) as he had until then been unable to see how the whole course fitted together. It was only when he created this 'fit' for himself, which reorganised the LOs in quite a different framework that he was comfortable with engaging with the course.

This is an example of what I would call 'enticed constructivism' (or even 'enforced constructivism'). The participants are in a sense 'set up' in a situation where they have to construct a context to fit all these bits and pieces, in order to make sense of them at all. An 'enticed constuctivism' design follows Seymour Papert's notions, in his very interesting work in designing LOGO as a learning environment, in that it presents a series of tasks, information, learning events etc in a way that in a sense 'begs' to be organised by using a super-ordinate or meta algorithm, which is not provided until the learner has 'constructed' it in their own mind.

There are a number of possibilities for such 'enticed constructivism':

- The tiered-hierarchy and sequential structure may provide a satisfactory framework or perspective – a 'course' or 'learning' perspective - which might satisfy some participants.
- Other participants might find this very unhelpful, but might already have the competencies and confidence to 'construct' their own framework.
- Yet others might be confused, and have no idea as to even what it would entail to 'construct' their own framework.
- If the brief for the designers is just to develop a 'course' then the course framework will be deemed to be satisfactory, and the question of context and framework will hardly even arise.
- If the design brief is to develop a 'participatory learning workshop' then clearly the participants' work/life contexts do matter, and if their contexts do not coincide with the course framework, they should be encouraged and enabled to create frameworks that are satisfactory for their contexts.

4.4 Content and Meta-content

These frameworks or perspectives create a context for learning. They can and should be

[5] Dale Spender, the author of many texts on virtual learning, discussed this with me as an ideal scenario at a conference in Singapore some years ago. But neither of us are any closer to getting it operationalised as far as I know.

[6] It is interesting that this sentence 'reads' quite differently if we use the term 'learner' instead - vide: "One way is to construct a personal perspective (schema/mindmap) of the module from your point of view as a learner". The term 'learner' affords you far less personal, intellectual and creative space than the term 'participant'.

created as metadata, or metacontent, in which case numerous frameworks can be created relating to any particular set of course content – within and outside of a particular module/course/learning workshop. It should be possible to exchange these frameworks too – either in text or in some map/mind-mapping form, and to create profiles of learner types – preferably based on their contexts as *users* of the learning, or simply as members of a community of practice.

The texts created in discussion forums are a mixture of content and meta-content, as they include both new texts, and comment on texts within the course material. If knowledge is about context, or meta-content, then it follows that the creation and sharing of knowledge within such a course will be enhanced to the extent that meta-content is articulated and shared. In the particular course referred to above, there was some comment and discussion on why particular mappings of the fourth module were done in a particular way, and why certain things were emphasised or left out. But the discussion did not progress from there.

4.5 Blogs

Another form of meta-content is blogging – writing weblogs, which are used increasingly in learning environments, although with mixed levels of enthusiasm – from allegations of 'vanity publishing' and voyeurism to overblown claims that blogs are the next frontier in free speech (which is some senses they are). Blogs are diaries of comments – people tracking events on a chronological basis, whether this is tracking their personal lives, or activities around them – from the Iraqi war to what's happening in a local learning environment.

What is interesting about blogs from an e-Learning point of view is that they do provide a different mode of participation in a course. The bread and butter of Virtual Learning Environments (VLEs) is a set of discussion forums, based on a series of LOs. These discussions succeed if they manage to develop a 'group voice' – a mode and tone of discussion that is supportive and safe for people to explore issues relating to the course, and which is comfortable for all the participants. It depends on how coherent and homogenous the group is as to whether this 'group voice' develops a recognisable context for learning or not. It often remains quite abstract, and lacking in particular context. This can be very useful for an academic, intellectual, or reflective practice type discussion, which is often what is required in e-Learning courses.

However, it is now generally accepted that blending learning remains the best way to create a learning environment, and using different media and modes of communication can add to the learning event. What is it that blogs can add?

Blogs succeed or fail to the extent that the person writing a blog finds and maintains an interesting 'voice' – i.e. interesting content as well as an interesting way of presenting it, or just 'saying' it. This provides a personal reference-context for the comments of the blogger, albeit one that develops incrementally as the blog progresses and the 'voice' gets established. This is useful, as it provides a contextual basis for comments, which can interface with the main discussions in the discussion forums of a course. As Winer says:

> *A blog is not a mail list or a discussion group, where many parties can participate equally. Indeed this autonomy of voice gives blogs what is a distinct advantage. Mail lists often grind to a halt because they have to get consensus. Blogs don't have to get consensus. The magic of a Weblog is that it can move. (*Dave Winer 2003 http://www.scripting.com/dwiner/, quoted by John Cox in the OU course I referred to above).

The modes of blogging and the modes of discussion forums can form a useful blend too. Discussion forums are places where participants can articulate their thoughts, with as much time as they like to write, reflect, and re-edit a contribution before it is *posted* to the discussion. Blogs on the other hand are as informal and whimsical as you like – they are not *posted* anywhere, people have to actively seek them out to read them. They provide unique affordances to try out your thoughts, within your own context, without necessarily relating these to any particular discussion or group dynamic.

There is also another form of blogging which can provide participation in a different mode in an on-line learning workshop: a blog written by a participant who tracks 'alongside' the course, in a blog, with little participation in the discussions themselves[7]. Some of the blogs

[7] Such a person would be a 'lurker' in e-learning terms – a 'non-participant'. The challenge is not to find ways to force

written as part of courses take on a life of their own, and participants start writing very extensively on one particular issue within their own blog, something which would contravene the discussion forum etiquette which requires everyone to be more mindful of turn-taking protocols, and mindful of nurturing the group dynamic. This too might add new content, even on quite new issues, or it might be 'tracking' commentary, which would be meta-content. Either way, it is provided within a personal context, which is not always polite to maintain or to profile within a group discussion forum.

5. Designing for online learning workshops.

5.1 The Humpty-dumpty Dilemma

I have already dealt with this at some length: the dilemma of putting the pieces together, not only after modularisation, but even more so after the commoditisation of LOs and their exchange across contexts. But to emphasise again: there is a great deal of learning to be done at skills level, much of which can be dealt with in this way, but equally there is a great deal of learning which even at skills level can only be learnt within a context, and within its application – obviously in a context. Then there is the generating, sharing and using of 'strategic knowledge' which can only take place within context/s – it's all about context. And that means LOs have to be particularly well 'arranged' within the 'score' of a learning workshop. There is also the dilemma of how the 'enticed constructivism' is designed, enabled and managed, and whether the 'learning' context is sufficient for the participants who are not primarily 'learners'.

5.2 Richness and elegance

In a world of hyper-links and global Internet sites, it is possible to add numerous links to LOs. Links are now key parts of 'connected' learning: on-line or off-line. In fact good teaching has always been about creating links and 'opening windows' for learners – long before the Internet. However, good learning materials have to do more than 'point' the learner to a resource - however interesting that resource may be, whether it is a website or an article in text format. Its how the 'connection' to the resource is structured, designed, guided, mediated and works that is the key value added. That is the difference between 'rich' and 'cluttered' learning materials, and inspiring and disordered teaching. Inter-textuality and 'inter-resourced' learning is part of the richness that connected learning requires, but the lines of thought have to be clear.

Elegance is the complement of richness, and is basically 'economy of line' or 'economy of expression'. Anne Lennon (OU course referred to above) defines it as: "Simplicity of content & interaction in relation to objectives (getting to the objectives in a streamlined way), clarity of objectives, and ease of passage through material." Elegance does not, however, preclude some embellishment, and does not have to fight against richness. The film *Babette's Feast* for instance, is all about a sumptuous dinner, which is nevertheless a single, elegant gesture, and this is reflected in the cinematography. Similarly when playing Baroque chamber music, you are expected to add some embellishments, of your own choice, but without detracting from the clarity of the harmony and counter-point – the 'line' as it were.

I would define richness as: a set of activities which offers you the opportunity to explore a new field in many, related directions, and which enables you to relate your own experience, and your own knowledge of the context, to the issues you are exploring. More specifically richness in an LO could be defined as offering choices of resources you can use to explore the topic, providing opportunities for different ways of solving the same problem, and links to related materials and topics. And lastly, richness needs to include some links to theory – particularly for developing knowledge. Theory is by definition meta-content, as well as a sounding-board and validation domain for what goes on in strategy and operations. It therefore adds another layer to the learning material.

6. Conclusion

Content and context are in many ways inextricably linked. There are however types of procedural information and strategic knowledge which can be differentiated as context-dependent or decontextualised. The design and management of Learning Objects needs to take this into account, but it must also recognise that it is always preferable to include

everyone to participate, but to find a sufficiently broad range of modes of communication (including audio-conferencing and audio-blogs) for everyone to find their own 'voice'.

A person who writes a parallel 'tracking blog' alongside a course could be likened (within the metaphor of the learning workshop as 'orchestration') to someone staying outside the room, playing an independent line of counterpoint.

context and application in learning. The hyper-modularisation of LOs can serve learning and training in procedural information very well, but it can also be used creatively for generating, sharing and using knowledge, if the requirements of contextualisation and 'fit' and 'enticed constructivism' are kept in mind.

e-Learning provides a mode of communication and interaction which is very different from traditional courses. E-Learning courses could usefully be termed *learning workshops* or *learning events,* and the people who enrol for these workshops could usefully be termed *participants* rather than students or learners. The design of LOs and e-Learning courses should be seen as a similar activity to writing a score for the performance of modern music, which is often arranged to encourage a certain amount of creativity and surprising outcomes, and certainly designed for emerging and new properties of interaction, tone, colour, harmony/disharmony and so on. To paraphrase Downes' terms, LOs should be the 'musical' vocabulary for continuously new and creative performances of learning events/workshops.

[i] Paper presented at European Conference on e-learning, Glasgow 2003.

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