

Groundhog Day *again?*

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I have found myself wondering what an online keynote should try to achieve. I have decided that it should present a single idea, clearly argued but likely to provoke some diverging views about its merit and application. It should not be too academic in character, or you might as well just give a link to a published paper, although online presentation probably demands a more reflective tone than a live keynote in front of an all-too-present audience - where there is a strong emphasis on performance. Indeed, my worst, ie most self-indulgent and thus least coherent, live presentations have usually followed an audience laughing too loudly at my opening joke. After some reflection about this I have decided to offer this presentation in two forms: a 3000 word paper where the argument is spelled out in a comparatively straightforward way, and a linked set of audio files that more closely resemble a live talk, containing spontaneous asides, hesitations and pauses.

Twelve years ago¹ I used the plot of the film Groundhog Day as a metaphor to describe how the experience of living through the excitement about technology in education always ended the same way – in disappointingly little change. In the film the protagonist only escapes from a time loop by finally recognising his true nature and I argued that only when we finally acknowledged the true nature of learning would we escape from the cycle of raised expectation followed by disappointment. This paper reflects on whether we can now say that we have indeed escaped from such a cycle, and whether the direction in which current learning technology is being developed can be thought of as truly transformational. The paper tries to give a perspective on this question by relating it to the emerging pedagogy of post-compulsory education, and to the remarkably different approach to the use of technology by the MySpace generation. In the original paper I argued, as others have², that previous cycles have all involved the development of a new kind of ‘delivery’ technology: television, film, video, then most of the varieties of computer-based learning and training, including hypermedia. Even intelligent tutoring systems – if you look closely enough at most of them – involve the delivery of learning materials, even though that delivery might be contingent on what the student has achieved previously. More recently, we have generally come to accept that delivery of ‘content’ is only part – and perhaps a minor part – of the important role learning technology can play in supporting learners. Such delivery supports only one of the three stages I discussed then – conceptualisation (engaging with new concepts), construction

¹ see <http://apu.gcal.ac.uk/clti/papers/Groundhog.html>

Published as MAYES, J.T. Learning Technology and Groundhog Day, In W. Strang, V.B. Simpson & D. Slater (Eds.) Hypermedia at Work: Practice and Theory in Higher Education. University of Kent Press: Canterbury (ISBN 0904938 57 3) 1995

² See for example Larry Cuban Teachers and Machines: Classroom Use of Technology Since 1920, Teachers College Press, 1986

(internalising the concepts by using them in learning tasks) and dialogue (refining understanding through discussion, feedback and reflection). Only technology that supports all stages of the learning cycle can stand a chance of being transformational, by helping to embed a genuinely learner-centred and constructivist pedagogy.

[Listen to the 'Delivery Mode' audio](#) (note that all the audio links in this document open in a new window, with player controls. The audio should begin automatically)

Since then we have, by and large, seen this wider role of technology acknowledged and developed by a gradual move towards using VLEs in a way that supports a more constructivist – task-based, discussion-oriented - approach to learning. In educational development circles at least the social, vicarious and identity-based nature of learning has been properly acknowledged, and e-pedagogy is being given prominence in staff development. Yet, while it is possible to talk now about the real enhancements to our learning environments brought by a more active view of the learner, and the increasing recognition that the real teaching task is feedback rather than presentation, it is still hard to describe our mainstream use of the tools as genuinely transformational. Yet perhaps this is how the revolution comes: creeping up without you noticing when things really changed – incremental, bottom-up, evolutionary. Groundhog Day may be a metaphor that encourages the wrong view of transformation.

[Listen to the 'Efficiency v effectiveness' audio link.](#)

Perhaps we should ask: how will we know transformation when it happens, how will we know when it's no longer Groundhog Day? Higher education, in particular, has been changing quite markedly in response to forces that have nothing obviously to do with either technology or pedagogy. Of course, no-one can doubt that technology – particularly the development of the internet – has been transformational in a large proportion of human activities over a short period of time, both in those organised by enterprises of one kind or another, travel say, and in more personal or social activities, like friends reunited. We wouldn't be addressing this theme, though, if it was widely agreed that education was part of this technology-driven transformational story. Indeed, it may be that education is one of quite a few areas where technology has played a relatively marginal role in emerging practice and it would be instructive to try to work out what those areas have in common. Are they all areas where face-to-face human encounters are key? It should be recognised, however, that post-compulsory education is now immensely complex – one might say fragmented – and there are certainly pockets of activity where practice has indeed been transformed by learning technology. The development of distance learning represents perhaps the single most important change in the post-compulsory educational landscape, and it seems to me that most modern distance courses are unrecognisable from the 'university of the air' ideas from which the

Open University emerged – distance learning has been transformed by the ability of students who are geographically remote from each other to share their learning experiences.

[Listen to the 'Transformation' audio link.](#)

I'm not sure that anyone really thinks that institutions like Universities or Colleges can themselves be transformed by technology alone, though we have witnessed a kind of transformation over 20 or more years in Universities through the massification of HE. One manifestation of the strain placed on all systems by the great increase in student numbers has been the attempt to industrialise teaching – and this underpins the attraction of delivery technologies. If your fundamental model of teaching is to present your subject in as comprehensible and attractive a way as possible as efficiently as possible then it is no surprise that you will have looked to technology for the way forward. Let us call this a *vertical* model of learning and teaching – the problem addressed is how best to achieve the efficient transfer of knowledge from those who are expert (and in HE will be researching in the subject) to those who are at earlier stages of understanding in the subject. On an expertise axis there is a flow of explanation from the top (high levels of understanding) to the bottom (lower levels). The same axis, incidentally, could represent constructs like status and power. Of course, even with a delivery approach there may be all kinds of attempts to engage the learner in active tasks, and even to inspire the learner with a love of the subject, but the main assumption is that the task of the teacher is to present the subject and then to assess how well students have grasped it. With this model the individual student is only hazily represented in the teacher's consciousness (or, one might suggest - despite institutional rhetoric about being learner-centred – in the consciousness of the institution). Most of the work seems to be done by the teacher, wrapping and unwrapping the subject like a present, rather than by the student. This model has all kinds of subtle manifestations, and some of them are deeply embedded in institutional culture and thus extremely hard to transform. At heart, though, is the kind of assumption that reminds me of the Gibsonian theory of perception – that learners will respond to the affordances impinging on them, some better than others, but there is no point trying to worry too much about how they do it. (John Biggs has a nice way of describing the shift from that kind of thinking to a constructivist position³).

[Listen to the 'Vertical v horizontal learning' audio link.](#)

³ Biggs, J. The Reflective Institution: Assuring and enhancing the quality of teaching and learning. Downloadable from the Higher Education Academy web site at http://www.heacademy.ac.uk/resources.asp?process=full_record§ion=generic&id=109

Some years ago⁴ I wrote an imaginary future scenario for learning in higher education (not so future perhaps, since I see that I described it as 'early in the new millennium'). It was a description of a technologically advanced vision of vertical teaching. It read as follows: *"It is early morning in late summer, nearing the end of the third teaching semester at the Murdoch Institute for Psychological Studies at the University of Western Scotland. Jason, a student at the Institute, though at this moment still in bed in his girl friend's flat in Brighton, voice-activates his personal learning station and yawns as Hal, his intelligent Web agent, bids him good morning. "How did you get on last night then, Jason?" "Never mind that, Hal, just tell me what I should be doing this morning". "Well, you have a video-conference arranged with this week's HoD, then you will be interviewed about your dreams by the school recruiting team, then I've scheduled you for a virtual reality tutorial with your statistics tutor in Tokyo. After that I think you should look at some data I've taken off the Web overnight for your virtual lab report this week." Jason, saying nothing, points at an icon projected on the bedroom wall. A face appears. "Hello, Jason". "Hi Eliza, I was just wondering if you've located that intelligent tutoring software on interviewing skills yet..." "Yes, but Jason, I think I should tell you that your personal grade for peer tutoring has gone down again..."*

[Listen to the 'Future scenario' audio link here.](#)

I did at least have the sense to add *"Like most predictions about the way technology will impact on learning and teaching this one will seem as far off the mark in the future, as 1950s predictions about teaching machines seem today"*. For the purpose of the current argument, though, what is the nature of the underlying model? The learner is being managed by a process outside himself that seemingly understands more than he does about the learning he needs to do. The role of the technology here is not the Intelligent Tutoring System vision of AI in education – that computers will be able to take on directly the role of human tutors. In this scenario, rather, the intelligence is manifested in some kind of all-knowing guides, rather than directly in tutoring. The scenario contains some elements of vertical learning but it is mainly describing a dialogue about Jason's learning processes, which is different. The dialogues with both Hal and Eliza are focused on Jason's learning needs – they will point out a variety of resources (including vertical teaching software) to engage directly with the subject matter. Indeed, the Hal agent seems to recognise that the statistics tutorial needs to be conducted with a human tutor – though come to think of it, the tutor could be in software form as well. What is wrong with the scenario (apart from its hopelessly over-optimistic account of what AI can achieve) is that Jason seems as dependent as a modern footballer being micromanaged and overprotected by a club manager. At the end of the scenario,

⁴ MAYES, J.T. Teaching, Technology and Talk. *The Psychologist*, 11, 8, 1998

though, is a reference to Jason's peer tutoring role, and in this we glimpse something that is certainly not vertical learning and teaching.

Since educationalists began to engage with the ideas of Vygotsky the main direction of thinking has been towards a more social interpretation of learning and teaching⁵. These ideas included the concept Vygotsky termed the zone of proximal development – the idea that learners need help from someone who can scaffold their developing understanding. One can also see this idea informing the descriptions of communities of practice popularised by Lave and Wenger. In fact, Vygotsky did not attempt to spell out the principles of what we now regard as the most interesting point pedagogically: how is the teaching intervention or assisted learning made most effective? What this approach requires is for the learning and teaching activities themselves to be designed to provide scaffolding –with both tutors and peers playing a role. The idea of scaffolding emphasises that the locus of control of learning passes to the increasingly competent learners. We still don't know enough about how scaffolding should be done, but the person providing the scaffolding must be sufficiently expert in their domain to judge individual learning needs, and sufficiently skilled as teachers to adjust dynamically, continuously to switch between the novice's and expert's perspectives. I am impressed by the careful empirical work on tutoring of Micheline Chi from LRDC in Pittsburgh. Chi et al ⁶ have found that students' learning cannot be attributed to the explanations and feedback that tutors provide. Instead, the best learning results from encouraging the learners to try their own explanations. The scaffolding that achieves this can be thought of as a transition from the vertical model to something more *horizontal*, as the learners are engaged in an interaction about own learning as well as in the subject being learned.

[Listen to the 'Learners as teachers' audio link here.](#)

What I want to argue here is that the adoption of a model of horizontal learning to underpin our fundamental approach to learning and teaching would be genuinely transformational in a way that no technology could ever by itself achieve. Transformation must occur first in the mind, in a fundamental shift in the model that we all carry around with us that represents our *raison d'être*. I first encountered the term '*horizontalisation of learning*' on Etienne Wenger's website, in his 'Learning for a small planet'. Wenger describes how radical doctors are trying to describe a new paradigm for the doctor-patient relationship, where a consultation is re-conceptualised as a

⁵ For an account of the background to e-pedagogy in educational theory see MAYES, J.T. & De FREITAS, S. [Review of e-learning theories, frameworks and models](#). Report for JISC, 2004. Available at [http://www.jisc.ac.uk/uploaded_documents/Stage%20%20Learning%20Models%20\(Version%201\).pdf](http://www.jisc.ac.uk/uploaded_documents/Stage%20%20Learning%20Models%20(Version%201).pdf)

⁶ Chi, M.T.H., de Leeuw, N., Chiu, M. H., LaVancher, C. (1994). Eliciting self-explanations improves understanding. *Cognitive Science*, 18, 439-477.

dialogue between two experts – one, the doctor, being expert in the generic medical science, while the other, the patient, is expert in his or her own case – medical and lifestyle history, symptoms etc. Both kinds of expertise are necessary for a successful diagnosis and agreed treatment regime and should be arrived at through a dialogue between equals – a horizontal relationship in which responsibility for outcomes is shared. Thinking about how such a re-conceptualisation would play out in higher or further education brings us to a realisation that some of our cinderella attempts to encourage reflection in our learners are moving in the right direction – just as the new kind of doctor-patient relationship requires a new mindset on the part of the patient, as well as of the doctor, so learners must somehow take more responsibility for their own learning.

Key to the idea of scaffolding is the nature of the relationship between the scaffolder and the learner. Vygotsky himself discussed the importance of modelling task behaviour on that of a more advanced peer. This relates closely to the idea of *vicarious* learning which has received a modern emphasis in recent studies examining the exploitation of the concept by the ‘re-use’ of learning dialogues captured online⁷. Mayes et al describe how dialogues recorded during ‘task-directed discussions’ by previous learners were valuable for new learners. Such dialogues may constitute a new kind of online learning resource, called tertiary courseware. This idea – that learners can benefit from accessing the outputs of the learning of previous learners - contrasts with the traditional approach to instructional dialogue by assuming that there is considerable scope for learning without being a direct participant. This approach is being tested in a professional learning context by a current TLRP project by Richard Cox and his co-workers⁸. It seems clear though that vicarious learning will only be effective where the learner identifies sufficiently closely with the peer(s) being observed.

[Listen to the ‘Vicarious learning’ audio link here.](#)

Horizontal learning, then, involves the development of a sharing culture, where learners work together to achieve their common task. We have seen, in the rapid take-up of Web 2.0 tools, a spontaneous move towards horizontal learning on a global scale. The recent DEMOS report, *TheirSpace*⁹, gives many examples of learners taking control of their own learning with social software. The report describes learners who are not just digitally literate, but who have an expectation that their learning is socially situated, and who are comfortable with the ideas of creating their own content and sharing their developing ideas with other like-minded peers.

⁷ Mayes, J.T, Dineen, F., McKendree, J., & Lee, J. (2001) “Learning from watching others learn” in Steeples & Jones, 2001: 213-227.

⁸ <http://www.tlrp.org/proj/phase111/cox.htm>

⁹ available from www.demos.co.uk

[Listen to the 'Web 2.0 and MySpace' audio link here.](#)

The gradual move towards a more task-based, enquiry and discussion-oriented pedagogy can be seen clearly in the development projects currently being initiated in the Higher Education Academy/JISC Pathfinder programme. Much of this can still be seen as a heavy-duty vertical approach, but there are also pockets of interest around what we can see as horizontal learning. Some of this is not developing as conventional pedagogy – if by that term we imply the deliberate design of educational procedures – but as informal learning, which is facilitating the bottom-up development of learning communities on a scale that goes completely beyond our previous institution-bound concepts of educational groups. Learners form online communities spontaneously by combining one-to-one (email and instant messaging), one-to-many (discussion tools, blogs and podcasts), and many-to-many (wikis) communication modes. Through these rapidly emerging tools, encouraging all users to share their own developing understanding of an area through social bookmarking and folksonomy, peer communication and collaboration becomes possible in a way that offers a completely new kind of e-learning, in stark contrast to the conventional quality-controlled learning directed by top-down software, in which users' roles are circumscribed by the rigidities of institution-based VLEs.

[Listen to the 'Transformation and Pathfinder' audio link here](#)

There has never been a more fertile ground for development, at least in UK post-compulsory education. In which we currently have the Higher Education Academy/JISC Benchmarking and Pathfinder Programmes, the JISC emphasis on pedagogy-led design and the learner experience, the Scottish e-learning Transformation Programme, and the Scottish QAA enhancement themes. In each of these a common thread can be discerned, of empowering and engaging learners to become digitally literate, to create their own learning materials and personal environments, and to use technology to more deeply understand, and better to negotiate, their own learning. So the support that is offered by the institution and its teachers to any individual learner will focus less on the direct business of presenting subject matter, and more on helping them to become expert in their own learning. There are several different ways of describing this shift in emphasis: one way is to say that there is a change from support to empowerment, another is to talk in terms of supply side versus demand side – this is a shift in emphasis from provision (or 'push') to take-up (or 'pull') in educational terms.

Two of the six projects being funded under the Scottish e-learning transformation programme, the TESEP project (Transforming and Enhancing the Student Experience through Pedagogy)¹⁰, and

¹⁰ www.jisc.ac.uk/whatwedo/programmes/elearning_sfc/sfc_tsep.aspx

the REAP project (Re-Engineering Assessment Practice)¹¹ both can be positioned as attempts to raise the skill and confidence of the students *as learners* so that they will be happy to take on more responsibility for the way in which they achieve their own learning outcomes. The basic assumption that these projects are really testing is that even a small shift in favour of student empowerment will bring about a transformational effect for the whole institution. To summarise the desired effect of this approach in a single phrase, the TESEP project has adopted the strap-line 'learners in control'. As a way of emphasising the need to prepare students for this new level of responsibility TESEP argues for a new approach to student induction. In the view of the project the conventional approach to the way in which students are prepared for the new demands of studying – a standard day or two as introduction, take it or leave it - barely scratches the surface of what is needed for students to become expert learners, whatever their level, or whatever the nature of their course. TESEP is promoting a model of induction that involves testing the initial competency of every student, and providing a flexible range of training opportunities so that every individual reaches a defined level of digital literacy. This is not to suggest that all you need to be an expert learner is to become an expert internet user, but it does reflect the TESEP assumption that the powerful possibilities for learning offered by e-learning, through exploring the web, sharing discoveries and developing understanding with others, and engaging in dialogue about outcomes, should be exploitable by all learners, not just those who have come into tertiary education already equipped to do this. In fact this approach would itself be transformational since it would imply a commitment to a wider view of what post-compulsory education should involve than our current subject-based perspective allows. It is currently more applicable within HE, with the concept of gradueness, than FE, with its more diverse set of output units and levels, but TESEP believes that the approach should be embedded across the board. The REAP project is based on similar principles of empowering students, focussing on giving students more responsibility for designing and implementing their own assessment, and using assessment as a way of promoting learner self-regulation.

If I had been presenting this paper as a PowerPoint presentation I would conclude by showing an image of the Woodstock concert in the summer of 1969 alongside the record of the first ARPANET link which was being worked on that month by a small team at UCLA and Stanford, and which successfully connected two months later, thereby establishing the technology on which the internet has been subsequently built. One could use the juxtapositioning of those images to suggest that we are usually looking for significance in the wrong place. But the point I really want to make is that we are now seeing the fusion of the two forces that the images represent– the web is now capable of not just tapping into the huge cultural impulse that led to Woodstock but of using the power of

¹¹ www.reap.ac.uk

ideas that can be globally derived and shared in local contexts, and applied for the benefit of the education of individuals. This must, surely, take us beyond Groundhog Day.

[Listen to the 'Woodstock and the Internet' audio link here.](#)