

If You Can't Join Them, Beat Them!

Personal learning environments for mid-career entrepreneurs.

Richard Parker, Strident Group Ltd

Claydon Court, Old Ipswich Road, Claydon, Ipswich, IP6 0AE

Tel: 07971 464279 E-mail: richard.parker@strident.co.uk Website: www.strident.co.uk

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ABSTRACT

Objectives

Despite the importance of entrepreneurial activity between the ages of thirty five and fifty four, mid-career entrepreneurs or MCEs receive substantially less attention in the literature than their younger counterparts (Rae 2005; Bothan and Granves 2009). This paper aims to show that personal learning environments or PLEs can help redress this deficiency by providing the technologies needed to engage effectively with this diverse and complex sector.

Prior Work

Work is based on the latest theory and practice in the field of education and learning technologies. It also builds on previous literature in the field of entrepreneurship education and nearly twenty years experience in business training at the author's group of IT businesses.

Approach

Formal action research consisting of a number of iterative research phases was conducted during 2009. These combined the latest education theory from the Open University's Educational Learning Technologies (ELT) division with the latest web 2.0 tools and techniques to build authentic learning activities situated in practice. Since starting in January, the project is starting its sixth phase and has now generated sufficient empirical evidence to enable deeper research using Qualitative Comparative Analysis.

Results

The main finding thus far has been that one of the biggest impediments to effective learning for MCEs has been to place activities within the confines of a traditional virtual learning environment (VLE). Originally envisaged as a mission-critical course management system underpinning all activities, encapsulating learning in Moodle has been detrimental to the flexibility demanded of learners who seem better suited to a personal learning environment (PLE) in our context.

Implications

Our research suggests that web 2.0 technologies configured to work as flexible personal learning environments may help meet the complex learning needs of mid-career entrepreneurs. This may finally bring about much needed changes in training provision argued for nearly twenty years ago (Gibb 1990).

Value

The ability of internet technologies to break the education 'iron triangle' of quality, accessibility and cost benefits everyone involved in learning. Mid-career entrepreneurs who frequently feel excluded from post-compulsory education may benefit most from these developments. PLEs could open up a massive market for MCE education by finally providing education in the way that small business wants (Gibb 1998).

INTRODUCTION

Strident Group is a small group of professional IT businesses based in Ipswich, England (Strident Group 2009). We have traded profitably for sixteen years and have employed between twenty and twenty-five people for most of that time. This paper explains our efforts at eLearning to develop and maintain the entrepreneurial culture necessary to sustain our business.

Our continuing success is almost entirely due to our people – or colleagues as we prefer to call them. Our people management policies were formulated early and then formalised through Investor in People ^[1] recognition in 2000 and have since been successfully re-accredited three times in 2003, 2006 and 2009. We were adjudged Suffolk's Best Employer in 2004 by our local Business Link – a title we may be entitled to claim indefinitely as they were promptly dissolved and the award has never been made since! Evidence suggests that we have much to be proud of but shortcomings became evident as we started to implement an exit strategy to steadily reduce my involvement in the business.

A BRIEF HISTORY OF STRIDENT LEARNING ACTIVITY

Strident has just two choices when it comes to finding, developing and retaining the colleagues we need to sustain our business: we recruit externally or we develop internally. Over the years we have relied increasingly on the latter as repeated attempts to recruit recent graduates or university students on placement schemes have been unsuccessful due to irrelevant and/or inappropriate student skills, unrealistic student expectations and attitudes, lack of interest in small business career, unwieldy or inappropriate placement schemes and costly and/or unmotivated intermediaries.

Our model has therefore steadily evolved to 'recruit for attitude and train for skill' by getting people at the lowest levels and steadily develop them to be able to assume greater responsibility. This approach has been most successful in technical areas where suppliers such as Microsoft (Strident is a Gold Partner) provide invaluable road-maps to ensure engineers, developers and analysts develop the skills needed to manage current and future technical offerings.

Less successful has been nurturing of the softer skills needed to manage people instead of products. We have tried numerous approaches over the years including NEBS Supervisory courses, MBA for managing directors, internal 'Passport' training, briefings and presentations, books and other resources. Progress has been limited and management capability remains the biggest 'cause for concern' from our IIP assessments.

The biggest and most glaring deficiency has been our relative lack of *entrepreneurial attitude*. It became clear that whilst many of the functional accounting, marketing and operational skills needed to run a business had been absorbed, the 'get up and go' needed to make these work in a small business had not. Directors appeared to have become 'institutionalised' and relied on me to provide much of the entrepreneurial spirit needed. Although perhaps not *born* that way, cognitive and behavioural theories suggest that they could be *made* into mid-career entrepreneurs (Bridge, O'Neill et al. 2003) and that is precisely what we set out to do.

Our attempts to find suitable help from local learning providers – including universities – failed to unearth anything of any relevance. Most fruitful were Business Link Suffolk sponsored regular presentations from the likes of Tom Edge, Richard Denny and, most notably, Julian Richer. Supporting books were useful in areas of Open Book Management and general business ideas (Stack 1992; Case 1995). The only training providers we found of any relevance were the Directors Centre (Craven 2005). and the Hallmark Organisation ((Hall and Bennett 2002). ^[2] We have looked at Action Coaching and similar schemes but thought them very expensive.

We accumulated these ideas and used them to inform our own internal training which evolved into twelve *Passport Training* sessions. These were delivered in 2004 by me using a sixty-minute lecture format backed up by PowerPoint slides which, with supporting material, were made available to colleagues afterwards. Although politely received they did not make a significant impact on learning outcomes. Five years later we needed to find out what went wrong and what we need to do to make it work this time.

One avenue considered was the use of *educational technology* to improve the delivery of internal training. Some research into use of web 2.0 tools to provide a more collaborative environment had already been made and to 'kill two birds with one stone' I enrolled on the MA in Online and Distance Education (MAODE) at the UK's Open University in January 2009 (Open University 2009a) to hopefully provide theory to underpin more technology-driven learning.

PHASE 1. RESEARCH DESIGN

Action research is our preferred research methodology and underpins a lot of personal and Group learning and involves a collaborative relationship between researcher and subject aimed at solving problems and generating new knowledge (Lewin 1946). An important element for an independent researcher without the benefit of peer review is its self reflection and 'a critical feature of action research is how you learn about yourself in action as you engage in first, second and third person inquiry' through experiencing, reflecting, interpreting and taking action (Coghlan and Brannick 2002 p 29).

Research design is based on Pawson and Tilley's (1997) realist evaluation cycle which argues that you should start with theory, then hypotheses, then observations to arrive at an evaluation programme (Figure 1):

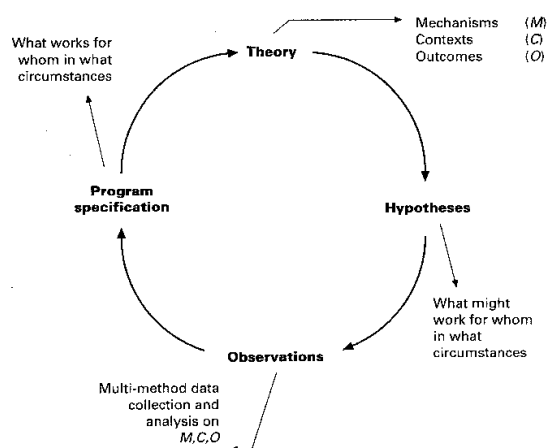


Figure 1 The realist evaluation cycle (Source Pawson and Tilley 1997, p.85)

In the first step, theories are framed in terms of propositions about how mechanisms are fired in contexts to produce outcomes and this is often done using analogy and metaphor. The second step is to generate hypotheses before then turning to observations and the methods of data collection and analysis needed to test these. Finally, the cycle provides limited generalisation by suggesting what works for whom and in what circumstances.

Later on, research uses cross-case comparison together with Qualitative Comparative Analysis (QCA) to identify combinational causality. This bridges the qualitative / quantitative divide by providing a synthetic approach using qualitative variables but formalised processing (Parker 2005). Ragin (1987) argues his case-orientated strategies are superior to variable-orientated as they are combinatorial, account for every instance of a phenomenon and have no need to test for statistical significance.

The primary aim of the research was to explore the combinations of conditions (mechanisms) which result in successful eLearning course outcomes in a small business context. More specifically, the extent to which personalisation of learning environments helps overcome resistance to learning often perceived as formal and artificial by owner/managers and mid-career entrepreneurs. This is an area of intense debate in education circles and Weller (2009c) sees personalisation as a continuum as shown in Figure 2.

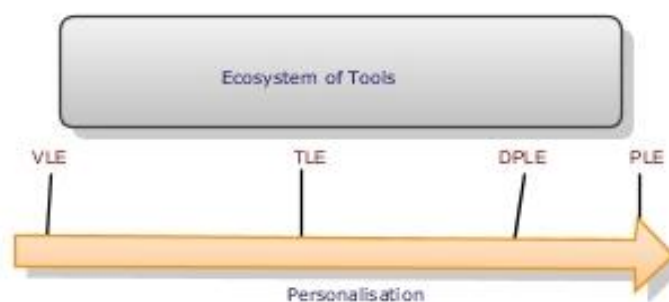


Figure 2: VLE /PLE Continuum (Source: Weller 2009c)
VLE = virtual learning environment, TLE = teacher led environment,
DPLE = Default PLE, PLE = personal learning environment.

Although starting with theory and hypotheses, the realist evaluation cycle is partly inductive in that observations guide further iterative cycles. The project plan that has evolved over the past nine months and planned for the next three months is shown in Table 1.

Phase	Activity	Dates
1	Research design	Jan – Feb
2	Create virtual learning environments	Mar – May
3	Contribution to Theory: The VLE/PLE continuum	Jun
4	Create personal learning environments	Jul – Sep
5	Contribution to Practice: VLE vs. PLE recommendations	Sep
6	Refine constructed VLE/PLE cases	Oct – Nov
7	Contribution to Theory: QCA analysis	Dec

Table 1: Action research project plan

PHASE 2. VIRTUAL LEARNING ENVIRONMENTS (Web 2.0 for Business & Scumbag College)

Although responsible for developing training and development activities within Strident, these have never been expanded to include the full functionality of a virtual learning environment. Attending a distance learning course (Open University 2009a) provided a useful introduction and the decision was taken to start at the left of Weller's continuum by using the OU template to guide the creation of a simple VLE to a) support effective, deep learning within Strident and b) possibly provide a platform for future commercial ventures. Wikipedia (2009a) defines a virtual learning environment as something which will:

'... normally work over the Internet and provide a collection of tools such as those for assessment (particularly of types that can be marked automatically, such as multiple choice), communication, uploading of content, return of students' work, peer assessment, administration of student groups, collecting and organizing student grades, questionnaires, tracking tools, etc. New features in these systems include wikis, blogs, RSS and 3D virtual learning spaces'

The term is often used interchangeably with course management system (CMS) or learning management system (LMS) (Moodle 2009a). The Wikipedia entry identifies two different environments in which VLE arise i.e. corporate and education. Purchased 'shrink-wrapped' systems tend to dominate in the corporate sphere but in the education sector internal development has been preferred especially since the arrival of free open-source software on hosted platforms changed the market fundamentally (E2BN 2009). Much of the post-compulsory education sector – including the Open University – uses the popular Moodle platform supported by similar freeware such as Mahara Eportfolio software.

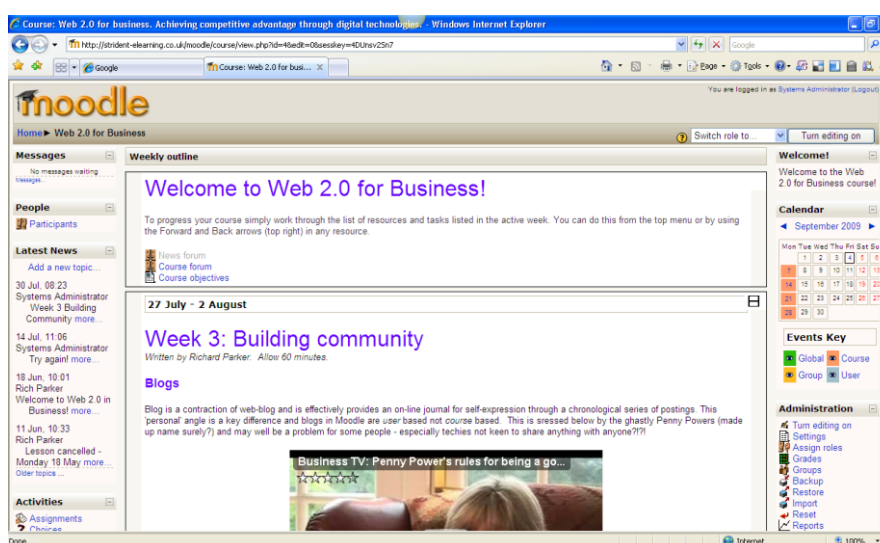


Figure 3: Web 2.0 for Business (Source: Strident eLearning 2009a)

Although able to provide the time to build a VLE, there was no research budget for software so the first site was based on Moodle and supporting freeware rather than any purchased application. A critical aspect of the new training activities was the use of web 2.0 technologies and as these technologies were new to all parties

– including the author – the content of the first course delivered was imaginatively titled *Web 2.0 for Business* (Strident eLearning 2009a) and introduced key applications such as forums, blogs, wikis, etc. and suggested ways in which they could be used in business.^[3] The course ran for eight weeks between March and May 2009 and was of limited success. The initial plan was to deliver it remotely over our group intranet, but extreme variations in progress meant this quickly switched to blended delivery ...

“What next?” Technical director, ‘Web 2.0 for Business’ after completing eight weeks’ assignments in one evening.

This led to a weekly introduction to a topic by the tutor (me) with subsequent exploration and assignments conducted by the management team during the week. Motivation was mediocre and contributions the bare minimum and self-reflection led to the suspicion that an acquisitive style with limited student ownership of learning was still to blame.

Lessons from *Web 2.0 for Business* informed the bigger and better *Scumbag College* (Strident eLearning 2009b) course which covered similar material but in significantly more depth. The course was pitched this time at secondary school children (my own) and the name was not only chosen to provide an element of fun to children forced indoors during summer holidays but also provides a useful (if inevitably somewhat convoluted) acronym for grouping learning activities into *Searching, Conversing, Understanding, Managing, Building, Announcing* and *Gaming*. This was achieved by mapping activities to Laurillard’s typology of digital tools and resources for learning (Laurillard 2003). This is explained fully in Appendix 1.

Scumbag College was published to the web in July 2009 and initially students had significant ownership of content i.e. they had the choice to study any topic they liked in any order. This was quickly revoked as there was utter confusion on the part of the children ...

“ it seems i’m completely lost. i have been told to carry on with the course and then when i get onto the website it seems the assignment i need to do is no longer online, which leaves me with no other option other than to do nothing! Well what else am i suppose to do, if none of the information i need to continue is not there?” Student ‘L’, Scumbag College

Delivery again quickly changed to blended with almost daily tutorials but with the controlled release of content using Moodle’s ‘hide content’ feature. This ensured students only worked on relevant content and enabled assignments to be issued and graded at the same pace. More emphasis was placed on self-reflection via blogs and the use of forums vs. wikis was clarified. A final burst at the end of August saw the course completed but it was suspected that the threat of laptop confiscation may have provided the impetus required. The course was useful to explore ‘age’ as a causal condition and is detailed on my eLearning blog (Strident eLearning 2009d).

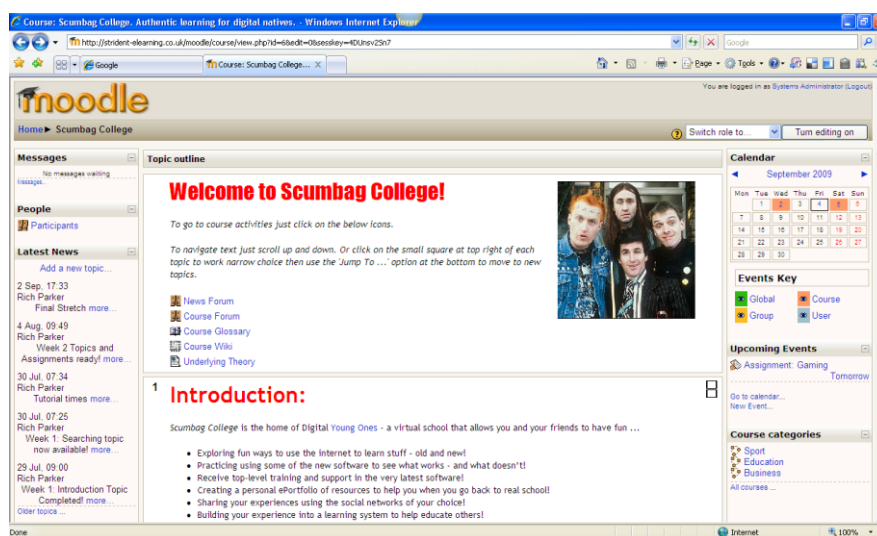


Figure 4: Scumbag College (Source: Strident eLearning 2009b)

Scumbag College proved that the effective use of technology delivered via a VLE can help break the ‘iron triangle’ of cost, quality and accessibility (Open University 2009d). The strengths of the open-source VLE are clearly the low cost, high availability and, at a functional level, high quality. The software has proved to be

reliable, bug-free, easy to install and host and intuitive to develop courses within. That this can be achieved with no initial financial outlay and can be deployed to almost unlimited number of people via broadband is a major factor in the ability to widen accessibility. The ability to share and re-use designs (e.g. LAMS 2009) and Open Education Resources (e.g. Open University 2009c) are further strengths.

But if these are VLE strengths in design OF learning, then their contribution to the design FOR learning is perhaps even greater. By providing the platform for student led, participative learning under controlled tutor supervision the potential for authentic learning based on a constructivist model is significant. This is especially the case with boundaries of learning become blurred with the advent of mobile and related technologies.

But these affordances come at a price. Both the literature and my experience testify to the high additional workload generated by the tutoring and feeding back to online classes with even a small number of students. The heavy reliance on technology – especially a reliable and rapid broadband connection – to deliver a VLE is potentially fatal to delivery as we discovered to our cost during several online tutorials. The lack of personal contact unless blended can also be problematic which was probably due to inexperience on my part. At the OU, the *Elluminate* package to provide the synchronous learning needed was far from perfect although better than earlier virtual conference methods (Open University 2009e). A further problem for the OU was the loss of control of VLE development resulting from involvement in the open source community (Weller 2009b).

PHASE 3. INVESTIGATING THE VLE / PLE CONTINUUM

The biggest weakness we encountered was achieving a balance between the centralised, controlled VLE environment and the flexibility needed to make best use of the other web-based learning tools as part of a learning Eportfolio. This was not only the case at Strident but within the OU course where the introduction of useful tools such as *Delicious* struggled to be fully embedded into the course learning activities. The problem was even more acute in our SME context where highly IT literate learners resented being constrained in what they perceived as an unduly restrictive and somewhat cumbersome Moodle wrapper.

The mistake Strident made was to use Moodle as what Conole (Forthcoming p.2) would describe as a 'catalytic trigger' and the failure of a *fixed* VLE to meet the *flexible* needs of small, entrepreneurial audience prompted an examination of systems that could cope with the complexity involved. Our attention turned to personal learning environments (PLEs) or ePortfolios which may be summarised as:

"... systems that help learners take control of and manage their own learning. This includes providing support for learners to set their own learning goals, manage their learning; managing both content and process, communicate with others in the process of learning and thereby achieve learning goals. (Wikipedia 2009b)"

It has been predicted that PLEs would overtake VLEs in five years (Weller 2007) and as his prediction was made two years ago this looks to be beaten with Aveiro University launching its first PLE system earlier this year (SAPO Campus 2009).

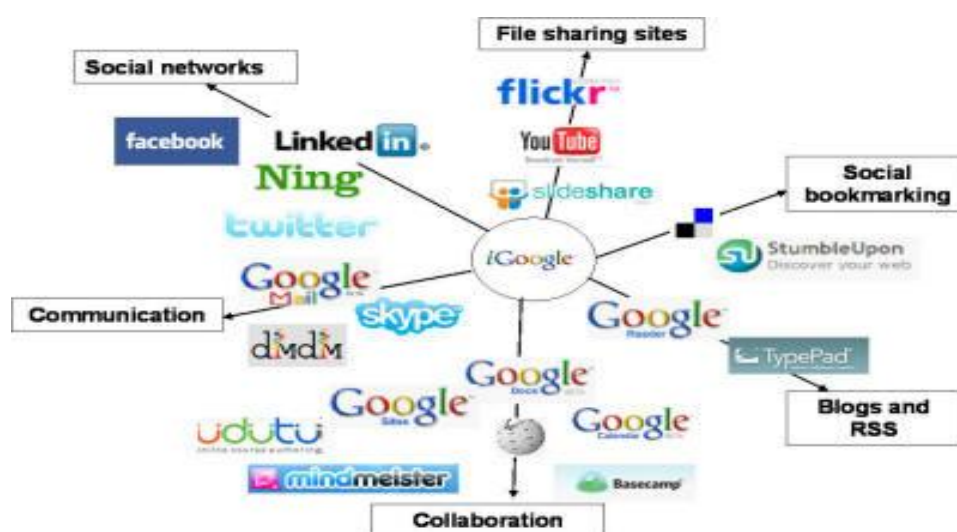


Figure 5: A typical PLE (Source: Hart 2009)

Others also make impassioned (and lengthy) claims for the PLE based on, amongst other things, ideas from complexity theory (Downes 2009). Anderson (2008) takes this further and links PLEs to McLuhan's Laws of Media in that like every new media they *enhance* through new affordances, *obsolete* through improvements in form, function and cost; *retrieve* older patterns of behaviour and *reverse* when stressed into older, non functional patterns.

Barrett (2009a) is another interesting author who is a strong advocate of PLEs (which she refers to as ePortfolios) especially their potential to extend learning to have both *more depth* and *more temporal* aspects: '... we can make ePortfolio development a natural process integrated into everyday life supporting lifelong and life wide learning ... we can integrate ePortfolio development with what Vygotsky told us about learning as an interactive social activity and the architecture of interaction (Web 2.0) allows a pedagogy of interaction.' She has developed these ideas into an *e-identity* which, by focussing on lifelong learning has special relevance to an MCE audience.

PLEs have also been used to support a *Guide on the Side* rather than a *Sage on the Stage* (Haythornthwaite 2008) and this metaphor underpins a lot of the thinking in entrepreneurship education especially at the NCGE (Gibb 2008). Harkem and Schout (2008) concur '... we can conclude that constructivist student-centred learning implies that students are stimulated to set their own goals, formulate their own targets, collect their own luggage and select their personal mode of transport (or build their own) for their journey towards innovative entrepreneurship.'



Figure 6: Scumbag College re-purposed as a PLE

But facilitating learning in real time involves complex and demanding tasks and tutors encounter difficulties in managing synchronous online learning (Fink 1998). Also highlighted are the heavy demands of running online tutorials in terms of managing the multiple tools for communication and presentation. Preparing material for online PLE tutorial sessions took much longer and needed greater effort to monitor students' learning progress. Although an advocate, Weller (2009d) admits there are also significant support, quality assurance, suitability, negotiation of activity and technological complexity issues with looser PLE platforms.

These issues did not prevent PLE ideas from being adopted into the next iteration of Strident eLearning courses which are based more on a *network* of activities (Open University 2009k). Re-purposing Scumbag College as a PLE involved moving products like Netvibes (2009) and Ning (2009) to the centre of the network as the starter pages with the remaining 'Scumbag' spokes leading off to appropriate software (see Figure 6).

PHASE 4. CREATING A PERSONAL LEARNING ENVIRONMENT (Digital Marketing)

At the start of July work started on developing a new course to explore whether a PLE platform could work better in our SME context. *Digital Marketing* borrowed ideas from Chartered Institute of Marketing training courses of a similar name course to deliver learning in ten areas (Table 2).^[4]

There was heavy input from learners into course design and outcomes and was delivered as blended (weekly meetings) to provide limited tutor support. The course used a PLE structure with minimal course text provided in a course wiki to provide holistic, self-paced learning. Because it was aimed specifically at young professionals (i.e. 18 to 25) it replaced a lot of written media with podcasts and video to reflect verbalizer tendencies. Age considerations also saw a switch in emphasis in communication from asynchronous messaging in Moodle to synchronous chat using a Facebook group. Although younger, learners are relatively experienced so content is fairly advanced. Self reflection is encouraged by moving from Moodle to a blog platform of their choice, usually WordPress.

Topic	Content
1	Introduction to Digital Marketing
2	Social Media Marketing
3	Email Marketing
4	Running Effective Digital Campaigns
5	Search Engine Marketing
6	Essentials of Podcasting and Blogging
7	Principles of Website Design
8	Mobile Marketing
9	Viral Marketing
10	Online PR & Advertising

Table 2: Course outline for *Digital Marketing*
Source: CIM Training Guide

Design principles adopted include basing on social media if possible, keeping it simple, sharing the motivation to participate to make it easy and rewarding, starting simple and letting others build on top, providing course outline and encourage learners to help build the course and providing limitations to frame output (Weller 2009e). Interestingly, it is not possible to illustrate this with a screen shot as the vast majority of learning content is in the learners' possession.

The course is still running but results have been much more encouraging. There certainly is more *participation* in learning as opposed to the *acquisition* delivered by earlier 'death by PowerPoint' sessions. Participative learning has strong advocates and some assert that 'the best indicator of success in college has to do with whether or not you know how to form, join, participate in study groups. Bar none.' (Brown 2007). As a social constructivist learning system, the founders of Moodle similarly advocate participation and discuss 'separate and connected' ways of knowing (Moodle 2009b) based on the earlier work of Clinchy (1996). Moving to a PLE platform also created a more *authentic* learning context i.e. where 'authentic activities ... are most simply defined as the ordinary practices of the culture' as opposed to 'classroom tasks which can completely fail to provide the contextual features that allow authentic activity.' (Brown, Collins et al. 1989, p34). It may explain how previous 'chalk and talk' training for entrepreneurship students or small business owners is not situated in their community of practice.

PHASE 5. CONTRIBUTION TO PRACTICE: VLE vs. PLE RECOMMENDATIONS

At this point in the research we had sufficient (albeit somewhat shallow) empirical evidence to suggest 'what works for whom in which circumstances' and identify possible causal conditions which determine optimum position along the VLE/PLE continuum. A useful template (Figure 7) to do this is provided by Beetham (2007) who suggests the key issue for practitioners is to focus on the activities and capabilities of the learners, not the tools deployed, and argues that because of their contingent nature '*learning activities are the most pedagogically meaningful focus of design for learning*' (p.27). Having already made this mistake by choosing Moodle as a catalytic trigger we had best start our analysis here.

Recommendations Relating to Learner(s)

Age will vary from school leaver to mid or late-career entrepreneurs and is likely to have a major implication on technical capability, pace of learning and learning style. If building for youth then build more synchronous communication into both technologies as Email is now passé for Generation Z (Whales 2009). Similar comments apply to pace of learning and use of devices and the ability to deliver courses on mobile devices via an iPhone application of similar will be vital. Whilst technical ambivalence may have been expected with the 'digital immigrant' management team in *Web 2.0 for Business*, any greater enthusiasm from the 'digital native' children in *Scumbag College* quickly evaporated (Prensky 2009). This reflects similar findings elsewhere (Kennedy, Dalgarno et al. 2007; Thorpe 2008).

Gender may be important and it is acknowledged that females tend more towards connected ways of learning (Clinchy 1996) which should be equally catered for in both VLE and PLE. No recommendation other than to avoid gender bias in course materials. Similar comments apply for *cultural background*. No recommendations at this time although this would be a promising area of research.

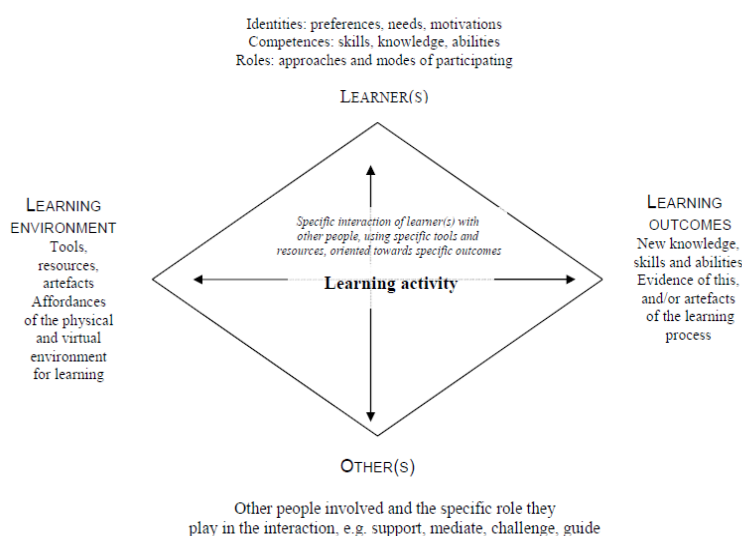


Figure 7: Outline for a Learning Activity (Source: Beetham 2007, p29)

More staid, secure and risk-adverse *occupations* would probably prefer the comfort of a VLE; more dynamic, enterprising and risk-taking entrepreneurs probably a PLE. This is a slightly odd category given that the objective of planned learning would be to encourage the latter traits, so perhaps start with VLE and move to PLE as the course progresses? Delivering either platform on mobile technologies will become increasingly important as busy entrepreneurs irrespective of age require the ability to learn anytime, anywhere.

Preferred Information Gathering Methods tend to vary with age. Older learners (visualizers) may prefer written content; younger learners (verbalizers) are likely to prefer audio or visual media. This can be provided in both VLE and PLE technologies but at considerable additional development cost. Assessing IGM via psychological profiling may be useful in determining this (Open University 2009g). Both technologies also need to provide an option to cater for different *learning styles*. A VLE is more orientated towards serialist learning styles (especially if controlled in Moodle using hidden/reveal functionality) whilst a PLE is more suited to holist style with the ability to choose individual learning paths. Whilst this flexibility is useful, experience suggests it will be vital to determine approach to autonomy in learning to enable this. Flexibility in offer (and associated cost) could be provided through self-paced PLE learning (holist) to cohort or tutor support (serial) via VLE.

Adaptive technologies should be built into both technologies to ensure access needs are met and all learners have choices. Practitioners should also check that materials, tasks and assessment criteria are appropriate for learners *existing skills and competences*. One issue we have certainly encountered is that familiarity with IT tends to mitigate against VLE as learners already know existing tools and regret learning new ones in an artificial environment. If resources permit, build extra functionality either side of the norm to cater for variances in ability. Age may again indirectly impact here again with ironically, younger learners having greater digital experience and therefore being more comfortable with less structured learning methods.

Recommendations Relating to Learning Environment

Both PLEs and VLEs need to be designed to be run in a *distance* mode only but ideally will support blended learning too. The tools provided to learners to interact are important and must be sufficiently flexible to support users with different aptitudes and experiences. The objective is to support complexity in the learning activity, not strangle it. Tools, resources and artefacts should consist of both what is given in the course and what learners find themselves. Involving learners in the design process both before and after participation will help increase ownership of the learning activity. This too is more suited to PLE delivery.

Until more flexible assessment and quality control methods are devised it is inevitable the formal education environments will prefer VLEs in their *place of learning*. The level of detail involved in TMA and ECA grading bears silent testimony to this. Less formal sources such as internal company training or free web content are more likely to be suited to PLE delivery.

A key objective is to design for *personalisation* and the 'world of the learner' (Ravenscroft and Cook 2007) which in our context means informal and situated in practice. This will be easier with PLEs which have greater flexibility than a more constrained VLE. Longevity is important too and situating learning outside of a formal VLE is likely to see its increased use post-course completion as skills are embedded within the learner's Eportfolio (Barrett 2009b). This argues for PLE delivery as part of e-Identity.

Recommendations Relating to Learning Outcomes

It is vital to clearly define the *purpose* of the learning activity for both technologies i.e. what new knowledge, skills or attitudes do the learners need to gain. Equally importantly will be to agree how learners will know if they have achieved them i.e. what are final *assessment criteria*. In both PLEs and VLEs a process to capture self-reflection will be important. A critical feature in entrepreneurial education will be to value differences and, for example, reward innovation as well as accuracy which is more likely to be realised in a flexible PLE.

From personal *experience* don't assume that simply providing courses using digital media will provide sufficient encouragement to see the course through. In an entrepreneurial context the linking back to both business and personal objectives is vital. Reward posting but don't expect much cross-group collaboration from entrepreneurs and you won't be disappointed.

Recommendations Relating to Others

It is recommended that the role of the *tutor* needs to be defined closely along with the involvement of other experts or mentors. Allow plenty of time and coffee for managing responses from both technologies as this can be incredibly tiresome. The reduced controls and greater variation in products means PLEs will be significantly more difficult - if not impossible - to support.

The flexibility of PLEs may support wider involvement including those from the local business community who may have advice to offer and help learners stay active, motivated and engaged. Try to build mentorship into the course from the start.

PHASE 6: TEACHER LED ENVIRONMENT (Groucho Club)

The next phase of research will be to develop content around the *Entrepreneurial Behaviour* theme as originally envisaged. *Groucho Club* targets an older audience of mid-career entrepreneurs and therefore has a more paced and serialised structure. Content is mainly written and fairly basic as learners have limited prior experience in the areas covered content. Learning for the first cohort is *Teacher Led* but supported by Moodle (Strident eLearning 2009c) to better fit the profile of potential learners, permit the controlled development of learning content and enable subsequent QCA condition set comparison with the earlier *Digital Marketing* PLE. Subsequent versions will be DPLE or PLE based.



Figure 8: Groucho Club delivered as a DPLE supported by Moodle (Source: Strident eLearning 2009c)

The course is based on a fully operational Moodle site including topics, forums, wikis, blogs, chat, messaging, assignments, grading, quizzes, surveys, etc. Although structured, significant opportunity to deliver material in new and innovative ways will be afforded (e.g. drama, video, podcast, dance, etc!) to force learners out of comfort zones and into new ways of thinking.

Whilst design is familiar, content is very different and is based on Gibbs' (2008) NCGE framework and other enterprise best-practice including E-Factors (Gibson 2006). The name of the course reflects the original intention to find some way to reach those entrepreneurs who shun formal education because of their very entrepreneurial nature. To paraphrase Groucho Marx 'they wouldn't want to join any club that would have them as a member'. The acknowledgement that the course design explicitly uses *collaborative* web 2.0 technologies to promote a *separate* way of learning is both important and innovative.

Topic	Content
1	Entrepreneurial Behaviour, Attitude And Skills
2	Empathy With The Entrepreneurial Life World
3	Key Entrepreneurial Values
4	Motivation To Entrepreneurship Career
5	Processes Of Business Entry And Tasks
6	Generic Entrepreneurship Competencies
7	Key Minimum Business How To's
8	Managing Relationships

Table 3: Course content for *Groucho Club*
Source: NCGE tests for an entrepreneurial university (Gibbs, 2008)

PHASE 7: DEVELOP THEORY – EXPLAIN FINDINGS USING QCA

Identifying the combination of conditions which produce successful learning activity outcomes in either VLE or PLE environments is an interesting and topical research area. There is much current discussion on their relative merits and whilst these operate on a continuum and are not discrete options, the choice between the two has fundamental implications on design and delivery.

The research method used to identify combinational causality will be Ragin's Qualitative Comparative Analysis (QCA) the ultimate goal of which is to identify necessity and sufficiency in causes or combinations of causes. When a causal combination is *necessary* for an outcome, all instances of the outcome should exhibit the same combination of causal conditions. When a combination is *sufficient* for an outcome, all instances of the causal combination should be followed by the outcome in question. Assessing necessity and sufficiency can be achieved by grading causal conditions on the extent of their set membership and then manipulating them using Boolean algebra.

A table of initial conditions is shown as Appendix 2 and is based on established data mapping ideas (Miles and Huberman 1994). This is then used to derive a truth table which, with high initial numbers of conditions would use dichotomous processing using Tosmana software (Cronqvist 2005). Space prohibits detailed discussion but there is a growing literature on this innovative method (Parker 2005; Compasss 2009).

CONCLUSIONS

Much of the education and entrepreneurship literature stresses the importance of *collaborative vs. individual* learning but the research described in this paper suggests that *structured vs. personalised* learning environments may be equally important. Moving back and forth along the personalisation continuum has provided a useful insight into how technical environment can make a significant impact on the success of outcomes in MCE learning activities.

The result is the possible disintermediation of existing learning providers from learning activities as individuals participate but through personal learning environments. Weller (2009e) argues that 'complexity resides in the network not in the application' and engaging with this complexity by moving from *network mediation* to *cyber infrastructure mediation* through more personal learning environments is a critical challenge for the education establishment Pea's (2008).

Acquisition	Activities	Participation
Read only (death by PowerPoint)	1.1 Technology (O'Reilly)	Read and write (surprised by Forum)
Simple, flat	4.4 Systems (Eng/Sayer)	Complex, deep
Left brain	5.5 Representation (Salomon)	Right brain
Separate	Ways of Knowing (Clinchy)	Connected
Artificial	Context (Brown)	Authentic
Inside head	Location (Brown)	Outside head
Tell	Coaching (Parker)	Sell
First person	Tone (Kolb)	Second and third person
Think your way to acting	Direction (Sternin)	Act your way to thinking
Consultancy	Delivery (Lewin)	Action Research
Business School	Organization (Gibb)	Entrepreneurial University
Virtual Learning	Environment (Parker)	Personal Learning

Table 4: Further Metaphorical Mappings (Based on Sfard 1998, p7)

Adding a final row to the table originated by Sfard (1998) and developed in TMA1 (Open University 2009g) argues that moving from VLE to PLE platforms may also support moving from acquisitive to participative learning styles (see Table 4). This has important implications for the delivery of effective learning – especially in the field of MCE enterprise and entrepreneurship – where learning styles, age and backgrounds all tend to mitigate against structured VLE delivery.

(6,560 words excluding notes and references)

Appendix 1: Laurillard's (2003) typology of digital tools for learning mapped to Scumbag College

Learning Activities	Laurillard Type	Media	Tasks Supported	Tools Available
S earching	Interactive		Tasks that return information based on user input. Develops information skills and supporting <i>research</i> tasks. Improves ability to seek and select from narrative sources. Includes computer assisted assessment (CAA) tools.	Search engines, gateways, portals, quizzes, surveys, GPS systems.
C onversing	Communicative (S)		Tasks involving communication between individuals and groups. Valuable because dialogue is central to learning whether by speaking, writing, drawing or others. Synchronous means learners have to learn communication skills, think on their feet and respond quickly and get quick feedback to inspire and motivate.	Chat, mobile phones, instant messaging, video conferencing.
U nderstanding	Productive		Tasks that involve the manipulation of data. Valuable support of <i>analysis</i> skills. Often use productive (data driven) technologies to allow learners to manipulate data consciously and explicitly.	Spreadsheets, databases, statistical tools, qualitative analysis tools, subject specific concordancers, etc.
M anaging	Integrative		The management of learning activities. Support learning resources and activities, allow recording of achievements, review of progress and action plans. Integrative technologies can enable economies of scale for teachers and greater ownership of learning and better assessment for students.	Virtual learning environments, E-portfolios, course management systems, learning design systems, etc.
B uilding	Narrative		Tasks involving representation. Used for either assimilation or production of images, sound, text, etc. Since learning requires activity learners need to produce own in response to comprehension tasks. Allows learners to be confident and creative with new technologies that provide quality outcomes and are easily distributed.	Assimilative: text, image, video files, slides, DVDs, web pages, animations. Productive: web & mm authoring tools, word & image processing, audio and video capturing and editing. Both: wikis, blogs, electronic wboards, etc.
A nnouncing	Communicative (A)		Tasks involving communication between individuals and groups. Asynchronous communication allows access at a time and place to suit the learner, access to wider resources and input, provide time for a more considered response and supports long term collaborations such as project work.	Email, text, forums, blogs, wikis, podcasts, videocasts, discussion boards, etc.
G aming	Adaptive		Tasks that depend on continuous adaption to user input. Learners receive intrinsic feedback in response to actions. Complex interactive systems provide sensory realism. Support <i>experimental</i> and <i>experiential</i> learning and development of higher order learning skills (e.g. problem solving) at low cost and risk.	Computer games, virtual worlds, models, simulations, interactive tutorials.

Appendix 2: Conditions matrix for action research phases (based on Miles and Huberman 1994)

Research Phase	1	2	3	3
Dates	Mar-May 09	Jun-Aug 09	Jul-Sep 09	Oct-Nov 09
Course Name	Web 2 for Business	Scumbag College	Digital Marketing	Groucho Club
LEARNERS				
Age	Old	Young	Young	Old
Gender	Both	Both	Both	Both
Culture	N/A	N/A	N/A	N/A
Occupation	Business	School	Business	Business
Info Gather Methods	Vizualizer	Verbalizer	Vizualizer	Verbalizer
Learning Style	Serial	Holist	Serial	Holist
Existing Skills	Low	Low	High	Low
ENVIRONMENT				
Distance	Blended	Blended	Blended	Remote
Resources	Moodle	Moodle	Netvibes	Moodle
Place	In Company	In Company	In Company	In Company
Personalisation	Low	Low	High	Low
Longevity	Low	Low	High	Low
OUTCOMES				
Purpose	N/A	N/A	N/A	N/A
Assessment	N/A	N/A	N/A	N/A
Objectives	N/A	N/A	N/A	N/A
Overall result	Unsuccessful	Unsuccessful	TBA	TBA
OTHERS				
Tutoring	Low	High	High	Low
Mentors	No	No	Yes	No

Notes

1. Investors in People is a UK national standard for people management (Investors in People 2009).
2. It is interesting that the exploitation of these by both authors took place outside of their original academic environments.
3. All Moodle VLE eLearning courses are online and can be viewed as a visitor. Some may require a 'key' which will happily be provided on request.
4. We simply borrowed the headings and will work out the content ourselves. It may not be as polished as the CIM but more authentic and cheaper. Sending four people on ten x 1 day courses would cost £20,000 plus VAT, travel and accommodation!

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