

eLearning Pedagogy Literature Review

Anthony 'Skip' Basiel

pros@mdx.ac.uk

1.0 Introduction

The purpose of my literature review in eLearning pedagogy is to identify the key issues from literature and the web as they relate to my research project aims and objectives which were detailed in the previous Introduction Chapter. The structure of my argument is presented in five parts. First, I will look at the organisational policies surrounding eLearning from an international down to a local context. A set of descriptions for the 'generations of distance learning' is presented and linked to this study. A 'pros-and-cons' analysis, next, looks at the stages which occur through an online learning event. Related appropriate learning theories emerge from my examination of the literature which are linked to the Transitional Autonomy Model (TAM), an outcome of this study, discussed later in the report. Finally, from this analysis a collection of design principles are presented. These dynamic Virtual Learning Environment (VLE) guidelines aim to support the learning technologist in their quest to communicate with the many various stakeholders involved in the eLearning process such as administrators, library services, content providers, academics, researchers, web interface designers to the learners themselves.

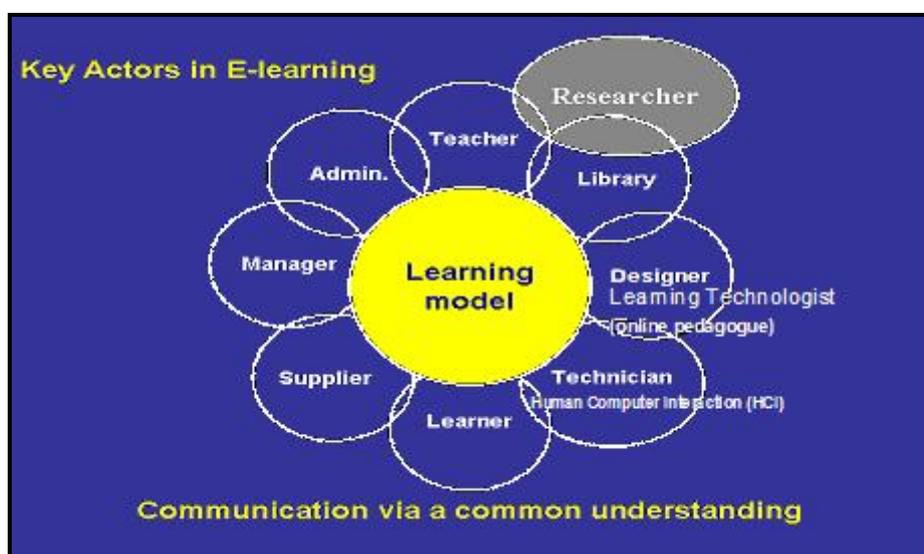


Figure 1 Adapted from: <http://www.johnstephenson.net/jsdownloads.htm>

2.0 Policy

eLearning policy is critically discussed in this section starting from an international to a local institutional perspective. Global & EC eLearning Policy is not analysed in detail for this literature review since the focus and impact of the investigation findings are aimed at a local/institutional level. However, the value of eLearning is recognised trans-nationally:

*"The e-learning e-evolution in colleges and universities is a pan-Canadian challenge...the potential of e-learning is clear and that we ignore it at our peril.... (it requires) a serious commitment to **understanding the very different features of this medium and the ways it can be used most advantageously to impart learning.**" (Garrison D. 2004)*

Since much of the time the construction of a VLE is a cross-disciplinary endeavour, the 'techies' may not understand the 'academic speak' and visa versa. Establishing a common ground of communication is the leading step to finding the appropriate tool to use in the VLE. Massey (2003) supports this initial proposition:

"The technologies are here. To be honest, I've been evaluating R & D in learning technologies across Europe for well over a decade now and in the last couple of years I've seen nothing new. The technologies are becoming quite mature. What is still in its nascent stage are innovative learning and development processes that take advantage of the technologies. So the final lesson for now is that we have the technology – now we need to find the compelling reason to use it." (Massey J. 2003)

The DfES (England's Department for Education and Skills) eLearning Strategy identifies barriers to distributed learning and develops a sustainable long-term strategy (DfES 2004). The HE strand encourages a collaborative approach to personalised learning activities, a theme which is developed through the course of this review (See Appendix A).

"e-Learning exploits interactive technologies and communication systems to improve the learning experience. It has the potential to transform the way we teach and learn across the board. It can raise standards, and widen participation in lifelong learning. It cannot replace teachers and lecturers, but alongside existing methods it can enhance the quality and reach of their teaching." (DfES 2003-Towards a Unified e-Learning Strategy)

According to the Quality Assurance Agency (QAA 2006) guidelines for distance learning: '(VLE) system design, programme design and delivery, student development and support, student communication and representation, and student assessment all raise particular questions for institutions about the ways in which they 'manage' teaching and learning to ensure that the quality of provision and security of academic standards are as they need to be.' This investigation adapts and applies VLE system design principles to produce a theoretical model, the Transitional Autonomy Model (TAM) which is discussed later in this report.

"I've read many times that the VLE is a Trojan horse that gets staff to think about how they teach. Once you make the move into eLearning, it definitely makes you think more about your f2f teaching." (Staley A 2004)

Middlesex University (2006) has several policies in place addressing the institution's eLearning strategy and home-working provision. According to the Corporate Plan, 'new approaches to teaching and learning involving web technology; higher productivity; increased access to higher education for people previously excluded by barriers of time, place and finance; growing international competition between universities (including new for-profit corporate universities); and a developing culture of lifelong learning as a response by employers and employees to the pace of change in an increasingly knowledge-based economy.' The Open and Distance Education policy sets these objectives:

- *proportion of module runs to have VLE support at least at the level of module handbook online;*
- *increased number of modules to be more substantially supported by online open learning;*
- *increased proportion of enrolled students in each School undertaking web-supported modules;*
- *integration of VLE with student management system;*

- *increased number of WebCT-trained staff.*

University staff members are given minor financial support for working at home depending on the School's Dean's discretion. A weakness of these provisions in the eLearning strategy is the follow-up implementation. A more detailed action plan showing online pedagogical principles linked to appropriate software tools would help academics better understand '**how**' to produce eLearning content and personalised learning activities. The WebCT/Oasis team offer Staff Development training, but this report aims to address this gap in the University's plan.

Figure 2 summaries the School of Lifelong Learning and Education's (LLE) Teaching and Learning WebCT strategy. The matrix highlights the eLearning issues of Access, Content, Evaluation, Communication and Pedagogy/Curriculum over time (short-to-long term). A transitional training approach is suggest by the diagonal line indicating the issues on the top gradually phasing out while the lower issues increase training over time.

Access (CSS Enabled) [Logistical issues (not addressed by CLD)] - guidelines	- training	- training
Content [Programme Handbook] - guidelines (segmentation)	- training	- training
Evaluation [Feedback] - email / surveys	- training	- training
Communication [Discussion Board] - induction / guidelines	- training	- training
Pedagogy & Curriculum - awareness of issues	- training	- training
Short Term (Term 1 – 9/03)	Mid Term (Term 2 ¾)	Long Term (Next Yr. 04/05)

Figure 2 LLE eLearning Strategy

The NCWBLP (National Centre for Work Based Learning) and Centre for Excellence in Teaching and Learning for Work Based Learning (CETL-WBL) has formed an ICT (Information and Communication Technology) action group. I have drafted a strategy (Appendix B) addressing these issues at a macro level: NCWBLP/CETWBL website, WebCT/Oasis (Vista), Macromedia Breeze Live (Web video conference) & eContent (PPT-to-Flash), CETWBL Capital Improvements (Soft/Hardware), eContent Process ICT Training (Staff Development), Follow-up on Network Bandwidth Test and other related ICT issues. As I am the Chair for Staff Development in the NCWBLP, I am well situated to act on implementing this plan under the direction of the Centre Head.

3.0 eLearning Context

Moore (1996) states that distance education (eLearning) is a complex system of institutional, individual, technical and social components. The eLearning experience is an integrated whole of all related components. A change in one part affects the whole system (Garrison D. 2004). This study supports Moore's position by taking a 'gestalt overview' approach to analysing the component parts of an online learning system in the chapter discussing the VLE Denouement Profiling Project.

Another approach to looking at eLearning under the umbrella of distance learning is to cluster its evolution through 'generations of development'. Garrison (2004), himself, is critical of reading too deeply into this classification scheme, but identifies its value in gaining perspective on the overall context of eLearning research. Table 1 allows us to compare and contrast the growth of technology in relation to pedagogy. It is valuable to remember that these are not 'hard' barriers between the generation descriptions. A VLE may have elements of different generations. This 'cross threading' of VLE components is discussed further in the Profile chapter [+Chap. #].

1 st Generation Correspondence /Transmission Model (Industrial)	2 nd Generation Broadcast model (OU – BBC TV)	3 rd Generation Computer Mediated Conferencing	4 th Generation Blending of 1-3 generations	5 th Generation Artificial Intelligence Managed Learning Environments
<ul style="list-style-type: none"> > Mass production / high quality content > Course team (instructional designer, graphic artist, editors, manager, etc.) > Behaviourist Learning Theory: scaffolding > Personal self-paced > Sense of isolation > Screen for Paper / email for post > Stand-alone: not taking advantage of the web 	<ul style="list-style-type: none"> > Cognitive learning theory > Limited interaction with tutor > CD-ROM resources Libraries of digital learning objects 	<ul style="list-style-type: none"> > Constructivist learning theory > Individuals as members of learning groups 	<ul style="list-style-type: none"> > VLEs: <ul style="list-style-type: none"> - provide retrieval of web content - CMC (computer mediated conferencing) - Locally distributed processes (ie – face-to-face inductions) 	<ul style="list-style-type: none"> > personalised > Intelligent flexible learning model > Automated Frequently Asked Questions > Integrated systems (ie database, VLE, Web Video Conferencing) > Semantic web searching (Berners-Lee 2001) <p>(Taylor 2001)</p>

Table 1 eLearning Generations adapted from Garrison 2004

The focus of this report falls mainly on 4th Generation VLE description and analysis. It is valuable to see and critically compare the evolutionary path of distance learning design and implementation. However, due to time constraints of the study the other generations will not be assessed.

Garrison (1985) and Nipper (1989) see a major task of scholars and researchers in distance education is to create conceptual models and taxonomies that allow us to better understand the world (and VLE) we inhabit and create (Garrison D. 2004). The next section of this review provides some critical discourse in several learning theories leading to the investigation's eLearning model and pedagogical typology that is detailed later in the document.

4.0 eLearning perspectives

This part of the discussion highlights contrasting views of the design and development of eLearning systems. First, the possible stages the academic and learner go through in an online learning event are critically reviewed. Next, a summary table of key issues relating to VLEs offers an at-a-glance 'pros-and-cons' comparison.

In chapter 'X' of this report, 'The VLE Denouement Profile', I identify the core components of a VLE as eContent, eCommunication, eLearning theory (Telepistemology) and eManagement as a way to produce an overall profile of a distributed learning system. This analysis mirrors that pathway.

Anderson (2004) sees a relationship between the VLE's intended learning outcomes and the teaching approaches used, 'like any pedagogy – eLearning is based on assumptions about achieving learning outcomes.' Contrasting this, 'instructor-set learning outcomes' are models that encourage proactive student learning agreements. This Learner Managed Learning Approach (Stephenson et. al. 2005) is exemplified in a Work Based Learning Model illustrated in Chapter 'X' [CDE project on ePedagogy Templates]. This approach was used in the British Council-Islamic University Gaza eLearning Workshop Project (British Council 2004) that resulted in being awarded the UK Higher Education eTutor of the Year in 2004.

Constructive alignment (Biggs 1999 in Mayes T. 2004) is seen as creating consistencies between learning outcomes, curriculum, teaching methods, the VLE and assessment, but Beetham (in Mayes T. 2004) reminds us that alignment *can* be achieved *without* the learning outcomes actually being valuable to the learner. In fact, Weiss (2000 in Mayes T. 2004) takes it a step further to suggest a '*hidden curriculum*' or a '*null curricula of the web.*' It is this trend towards 'a personalised curriculum' or individual programme plan (as used in our Centre for Excellence in Work Based Learning) linked to in/formal learning that is addressed later in this report under the section; VLE Denouement Profile.

It can be argued that a VLE is composed of a (conscious) blend eContent and eCommunication opportunities. eContent, then could range from a 'teacher creates all' to a 'student-generated' activity approach.

Online (text) discussion design warns against an over reliance on teacher posting questions not relevant to learning objectives that may de-motivate students. Rourke & Anderson (2002 in Anderson T. 2004) suggest discussion groups can be led by student moderators which increases participation.

A bi-polar view of VLE Models presents an individual or virtual community approach. The 'individual model' relates to table 1 with the Generation 1 & 2 designs, where as a virtual community of learning uses online communication tools to support student collaborative activities (Anderson T. 2004).

To have a realistic perspective of eLearning systems we must recognise their constraints. Table 2 compiles data from Bonk's (2006) "Blended Learning Handbook", (Chapter 1). This matrix offers a critical comparison between the strengths and weaknesses of the VLE topic under analysis.

VLE Topic	PROS	CONS
Usability	<i>Convenience and access</i>	Online learning components often require a large amount of self-discipline (Collis, Bruijstens, van der Veen 2003)

Balance between global and local interests	<i>Ability to distribute uniform learning materials rapidly</i>	Customise materials to local audience to make them culturally relevant.
Text-based VLE	<i>flexibility, depth of reflection</i>	lacks spontaneity, serendipitous discoveries, tendency to procrastinate, impersonal interaction lowers human bonding and satisfaction
Web Video Conferencing supported VLE	<i>Social presence encourages trust, rapid chain of associated ideas more likely</i>	Dominant personalities may limit participation. Limited time may restrict discussion depth. Intl' time zones must be addressed for meetings.
Transferable/critical thinking skills	<i>Tutorial software (VLEs) can be used as a basis for discussion between learners can be a good way of infusing thinking skills into the curriculum.</i>	using technology does not, by itself, lead to transferable thinking skills

Table 2 Pros and Cons of VLE systems

A starting proposition of this investigation is that the technology alone will not enhance learning. Appropriate online communication and learning tools supported by a flexible and robust pedagogy may better meet the needs of the distance learner. In addition, this online pedagogy should have a theoretical underpinning. The next section critically examines current learning theory related to VLEs.

5.0 Emerging eLearning theory

Moore (in Bonk C. 2006) reminds us that one can, and should, study the concept (of eLearning) from the point of view of the classroom teacher and the pedagogical theories underlying classroom practice. Pedagogies are connected with students' learning outcomes, and have been widely accepted for epistemological and empirical reasons. In this way, the issue of integrating eLearning into the pedagogical system has recently emerged as an important and pressing focus for research (Mehanna W 2004). Mayes (2004) states that for good pedagogical design, there is simply no escaping the need to adopt a theory of learning.

Privateer (1999 in Garrison D. 2004: p. 77) says that digital technologies (eLearning) require radically new and different notions of pedagogy. It makes little sense for academia to continue a tradition of learning significantly at odds with technologies that are currently altering how humans learn and interact with each other in new learning communities.

Lane (2006) says there are various models of science on which we might draw to underpin our practice, which include:

- The pursuit of truth – the empiricist worldview
- Finding the best available – falsification
- Working within frameworks – paradigms
- Elevating discourse – social constructivism
- Interacting systems – critical realism
- Chaos out of order – new science, it all depends

These general philosophical/epistemological groupings aim to guide the modern scientist-practitioner in finding an appropriate research methodology. This may serve as a foundation to the formation of other learning perspectives.

Mayes (2004) offers us some 'generic learning perspectives':

- 📖 Associationist/empiricist perspective – learning as activity
- 📖 Cognitive perspective – learning as achieving understanding
- 📖 Situative perspective – learning as social practice

While table 3, a JISC (2004) eLearning report summary, refines them:

Learning Perspective	Epistemology	Illustration
Associative perspective	<i>learning as acquiring competence</i>	Progressive difficulty / individualised pathways (i.e. – Work Based Learning student learning agreements)
Individual Constructive	<i>achieving understanding</i>	Activities to discover principles. Support for reflection
Social Constructive	<i>achieving understanding</i>	VLE with activities to discover principles. Support for reflection and peer review
Situative perspective	<i>social practice</i>	Social learning communities of enquiry

Table 3 Adaptation of JISC ePedagogy summary

Reflection on learning is a common thread going through most learning perspectives or theories to some degree. Dewey recognised it as far back as 1916, while Cowan (1998) sees reflection as a necessary pedagogical method and Kolb (1984) includes it in his experiential learning cycle (in Mayes T. 2004)

Constructivism is currently seen as a dominant theory to support VLE design and development which is core to the formation of the Transitional Autonomy Model (TAM) elaborated later in this report (see chapter 'X'). Mayes (2004) summarises this view of learning as a process which is cumulative, goal-orientated, self-regulated and dependent on prior knowledge/experience through active construction of understanding. He offers these key components to promote online pedagogy:

- ownership of task
- coaching and modelling of thinking skills
- scaffolding
- guided discovery
- reflection opportunity
- problem-solving

A comprehensive discussion on Constructivism should include reference to Vygotsky. His contribution of Activity Theory (1978 & Jonassen 2000 in Mayes 2004) and the Zone of Proximal Development (ZPD) are commonly referenced in current eLearning research (ALT eLearning Theory Workshop 2005). As these elements are not integral to the report I will only briefly link them to scaffolding.

ZPD is the distance between learner's current conceptual development (as measured by independent problem solving) and that of their potential capability (measured by what can be accomplished through collaboration with more capable peers). Scaffolding, building connecting links between these points of understanding, exploits ZPD. Tutors need expert domain knowledge to judge individual needs to switch between novice and experienced student perspectives. In a VLE context then, online tutors need guidance in the art of scaffolding as they learn to use online support tools such as email, discussion boards, web video conferencing, etc. (Mayes T. 2004).

Jonassen (1998) sees scaffolding as a type of '*mind tool*' which support different forms of reasoning about content. That is, they require students to think about what they know in different, meaningful ways. Expanding on this, Brown (in Mayes 2004) sees concepts as tools to be understood through use, rather than as self-contained entities to be delivered through instruction. (AKA - Constructivism). In this context, VLE tools, such as, physical (books, software) and cognitive (memory, concepts, language) tools enable and constrain activity through their *affordances* (Mayes T. 2004).

A deliverable of this project is to design, develop and evaluate a software toolkit which helps the users of a VLE better develop their conceptual models of how to use the system (see chapter 'N').

Student-centred VLEs are moving away from a 'Transmission Model' (Generation 1 – Table 1) to take on a problem / project-based approach. This requires enquiry-oriented pedagogies according to Mayes (2004). A small sample of exemplars is offered here and expanded by Horton (1999?):

- problem based learning
- anchored instruction
- cognitive apprenticeships
- reciprocal teaching
- goal-based scenarios
- project-based learning

VLE learners are adopting the values of personal responsibility and shared control as their own. A critical, collaborative learning community has been the *sine qua non* (**you can not do it alone [in isolation]**) of higher education (Mayes T. 2004). Written communication alone lacks a sense of immediacy – behaviours that enhance closeness to and nonverbal interaction with another (Mehrabian 1969: p.203 in Mayes 2004) The transactional perspective for an (online) community of inquiry where both reflection and discourse are utilised to facilitate the construction of personally meaningful and socially valid knowledge in a 'deep learning approach' (Ramsden 1988 in Mayes 2004).

This study explores the online social community aspects of eLearning through the web-based video conference section of chapter 'N'. Through the appropriate use of eCommunication tools and supportive pedagogic design networked learning communities can be forged.

Critical thinking and discourse are central to the eLearning theoretical framework according to Mayes (2004 p. 57 & 59, Figure 6.1 & 6.2) who summaries the process

as a six-stage cycle. Table 4 shows a comparison to Dewey's (1933) practical inquiry which is grounded in experience:

Critical thinking	Practical inquiry
1. Begin with a problem identification or definition. This shared knowledge of the world forms a public information-base.	1. Triggering event in shared world leading to perception and awareness
2. Next, a hypothesis is generated through exploration of the problem (insight through Induction).	2. Exploration in the private world
3. Meaning is constructed individually and socially.	3. Deliberation – applicability
4. Next, this understanding is applied to the context of the (real-world) problem (insight through deduction).	4. Integration – reflection generates meaning making
5. Integration is where confirmation builds a personal knowledge-base.	5. Conception (ideas)
6. Links back to the problem (as reflection) take the form of dissonance and appraisal.	6. Resolution – supported via discourse (which can be strengthened in a VLE)

Table 4 Comparison of Mayes & Dewey's framework

Thinking skills (like eLearning) are not unified by any single psychological (learning) theory. It includes: strategies, habits, attitudes, emotions, motivations, aspects of character or self-identity and also engagement in a dialogue and in a community of enquiry. A VLE has 'transformative potential' which should support analytical and flexible learning capabilities, confidence, self-discipline, communication, an ability to collaborate, reflexivity and questioning attitudes (Mayes T. 2004).

In this report critical thinking is addressed in the VLE Denouement process (see Chapter 'X'). Through using these skills the academic building a VLE can generate an overall profile of their teaching and learning system. In turn, the VLE can then promote critical thinking by its users.

In/formal learning is the last aspect of learning theory that should be noted, as not all education takes place in a formal academic setting (face-to-face or virtual). VLEs should support in/formal learning, differentiating between formal instruction and that type of spontaneous and undefined learning associated with information retrieval and display. There is a great deal of unscripted interplay in an eLearning experience that provides for creativity and serendipity. Functional communities have a common purpose, but must also allow new meanings and understandings that recognise the uncertainty of knowledge to emerge (Myers K. 1999 in Mayes 2004).

Work Based Learning recognises the value of in/formal (or spontaneous, unplanned) learning which is supported by the research shown in the report for web video conferencing (see Chapter 'X').

A **transitional learning theory** seems to be emerging. Wegerif (2002) believes that most practitioners (teachers) do not mind blending (in a VLE) the promotion of automatic habits through positive feedback [learning as behavioural modification] and teaching conscious meta-cognitive strategies such as always seeking an alternative view [from cognitive learning theory] with creating a community of enquiry in the virtual classroom [learning as social participation].

Learning can be seen as a change in the state of understanding. Growth implies learning as a positive move towards completion of a goal (Wegerif R. 2002). This, however, infers learning as a linear metaphor. I see learning as a 'spiral' that has unpredicted outcomes and learning from failures. Yet, we could argue that in a spiral model there is a growth or progression up the spiral as learning 'grows' to different levels of autonomy. (See Appendix C)

Adaptable design principles are needed to accommodate the pedagogical structure of a VLE to deal with the transitional nature of the 'state of the learner' and the appropriate online tools to support the educational process.

6.0 VLE design principles

An intention of this research is to provide conceptual order along with principles and guidelines that have generalisability and value for academics and related professionals (Garrison D. 2004). A crucial stage in the design process (of a VLE) is where the learning theory is unpacked into a detailed pedagogical approach (Mayes T. 2004).

A VLE design should support the connection between *participant/stakeholders* and the *VLE purpose* via *mediating tools*. The relationship between these components should be linked by a set of rules (Mayes T. 2004). Garrison (2004) suggests some design principles that can be adapted and applied to a VLE context:

Content design principles	Organisation guidelines	Teaching presence	Social presence guidelines
<ul style="list-style-type: none"> > illustrate content issues with personal reflections, anecdotes, discussion of teacher's own struggles and successes as they have gained content mastery to motivate students > inclusive, globalised approach to consider local reader's perspective 	<ul style="list-style-type: none"> > profile learner > establish curriculum > identify resources > define clear expectations and goals (process & content) > identify & address technological concerns > structure (individual/collaborative) activities > set time frames > devise assessment process and instruments (some would put this first) > select media > factor formative evaluation into the VLE system 	<ul style="list-style-type: none"> > establish a 'global perspective' > establish trust and being welcomed > belong to a critical community > give a sense of control > promote a sense of accomplishment > encourage a willingness to engage in discourse > set a conversational tone > promote a questioning attitude 	<ul style="list-style-type: none"> > acknowledge and welcome participants as they enter discussions > discussion moderation should be encouraging and supportive > students should login regularly > peer response to specific contributions should be recognised > communication should be conversational and not too formal > encourage 'lurkers' to participate > express feelings, but avoid 'flaming' > be cautious using humour, until familiarity is achieved > students need to contact tutor when problems arise

Table 5 - Garrison's (online) learning design principles

In a JISC report (2004) effective practice in e-Learning is analysed:

6 key dimensions of eLearning	Guidelines of effective eLearning
<ul style="list-style-type: none"> 📖 Connectivity- global access to info 📖 Flexibility – anytime/place 📖 Interactivity – immediate and autonomous assessment 📖 Collaboration – through online discussion tools 📖 Extended opportunities – reinforce classroom learning 📖 Motivation – enjoyable learning 	<ul style="list-style-type: none"> ➤ engage learners in the learning process ➤ encourage independent learning skills ➤ develop learner’s skills and knowledge ➤ motivate further learning

Table 6 JISC VLE design guidelines

These suggested VLE guidelines and design principles are not meant to act as a constraint to eLearning pedagogical design creativity. A VLE architect is not required to use *all* of the suggestions above. This research encourages the learning technologist to select guidelines appropriate to the context and level of the knowledge domain.

The challenge is to design and create a context, with appropriate levels of social presence, which is congruent with the content and the reinforcement of the educational goals that will enhance cognitive presence and the realisation of higher-order learning outcomes (Garrison D. 2004).

Mayes (2004) encourages a blending of elements that emphasise all three perspectives of learning: as behaviour, as construction of knowledge/meaning and social practice. This act of blending is unlikely to have a 1-2-1 mapping for a VLE to a single perspective.

Based on these design principles these categories of blended (Transitional) learning systems (VLEs) are possible:

- **Enabling Design:**
VLE provides additional flexibility to learners or blends that provide the same opportunities or learning experience but through a different modality
- **Enhancing Design:**
Incremental changes to pedagogy but do not radically change the way teaching and learning occurs.
- **Transforming Design:**
Radical transformation of pedagogy makes a change in a model where learners are just receivers of information to a model where learners actively construct knowledge through dynamic interactions (Bonk C. 2006: Chapter 2).

7. Summary Discussion

This literature review began with an analysis of eLearning pedagogy from a global to local perspective. An emphasis was placed on the institutional level in light of the work based focus of the study.

An overview of ePedagogy was discussed examining an adaptation of Garrison's (2004) distance learning generations leading to a critical review of the 'pros and cons' of VLE systems.

A proposition of this report is that by critically comparing the online learning theories and VLE design principles put forth in this literature review to the conclusions of the three projects in this study, it would be possible to design a purposeful, creative learning environment with the appropriate balance between reflection and discourse. Garrison (2004) believes that VLEs have the capability to precipitate private reflection as well as promote public discourse within a community of learners.

Some possible outcome of these VLE design principles are offered in Appendix D. Mason (1998) provides three generic online curriculum models that relate to the VLE Denouement Profile Methodology discussed later in this report:

- Content and support model – static web content supplemented by e-tutorial support.
- Wrap-around model – web course material is wrapped by activities of online discussion.
- Integrated model – collaborative e-activities are supported by dynamic online content.

Through the process of reviewing literature on eLearning pedagogy, critically examining online learning theory and developing principles of design for VLEs appropriate models of eLearning systems can be applied through the research in this project.

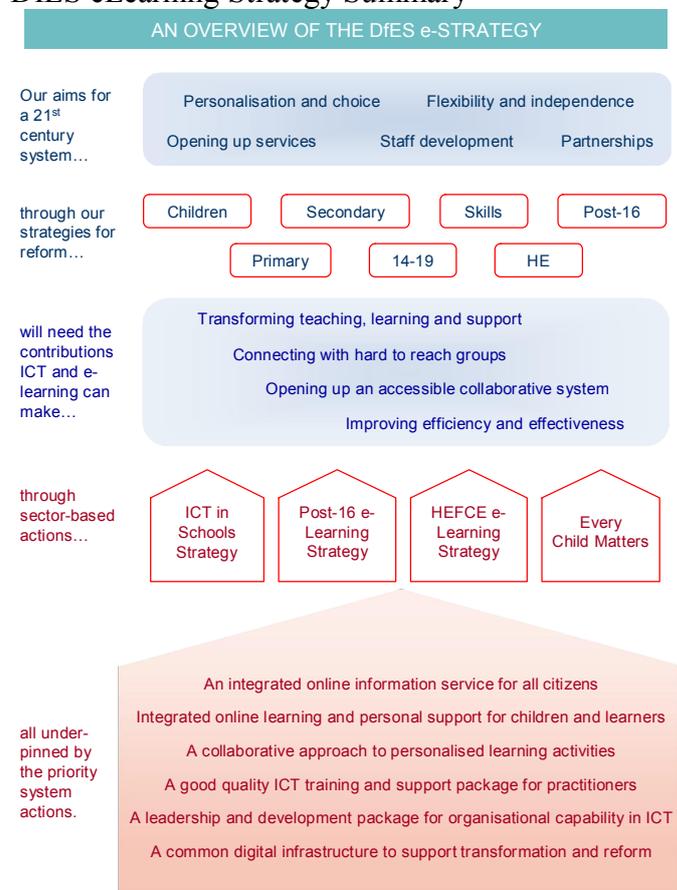
Bibliography and References
ALT eLearning Theory Workshop 2005 – look up old URL
Anderson T. 27/07/04, “Teaching in an online learning context” http://cde.athabasca.ca/online_book/ch11.html
Basiel A. 1999 “Applied Formative Evaluation in the Web-based Environment” - Middlesex University MPhil. in Computing Science
Beetham H. et al. JISC 2004 – www.jisc.ac.uk/elp_outcomes.html
Bonk C. 2006, “Blended Learning Handbook” – [add URL]
British Council 2004 – add URLs for IUG project Award (ie – my URL, HERO, HE Academy, Times etc. – do google search)
Chickering A. 2004, “Implementing the seven principles: technology as lever” – AAHE Bulletin, Oct. p. 3-6, www.tltgroup.org/programs/seven.html
Constructivism List serve 15/06/05 – CONSTRUCTIVISM@LS.UNIVIE.AC.AT
Critical Thinking Skills: DfES 2002 – The National Curriculum, London: HMSO www.nc.uk.net/learn_think.html
DfES 2003 ‘Towards a Unified e-Learning Strategy’ www.dfes.gov.uk/publications/
DfES 2004 www.dfes.gov.uk/publications/e-strategy/
Dyson M. 2003, “Evaluating Virtual Learning Environments: what are we measuring?” – Electronic Journal of e-Learning, Vol. 1 Issue 1 p. 11-20 http://www.ejel.org
Eskow S. 25/07/05, ‘My stake on transactional distance’ DEOS-L@LISTS.PSU.EDU -
Garrison D. 2004, “E-Learning in the 21 st Century” RoutledgeFalmer, London
Horton W. 1999? <confirm> “Web-based Training”, Wiley Press, London
JISC 2004, “Effective Practice with e-Learning” HEFCE, www.jisc.ac.uk/elearning_pedagogy.html
Lee J.-S. 2003, “Technology Acceptance and Social Networking in Distance Learning” – Educational Technology & Society, 6(2), 50-61 – http://ifets.ieee.org/periodical/6-2/6.html
Massey J. 2003 “e.learning age (Oct) ‘What have we learned?’ p. 13
Mayes T. 2004 “Review of e-learning theories, frameworks and models” JISC e-Learning Models Desk Study
Mehanna W. 2004, “e-Pedagogy: the pedagogies of e-learning” – ALT-J, Research in Learning Technology Vol. 12, No. 3, Sept. 2004 ISSN 0968-7769
Middlesex University (2006) – Policy Statements <ul style="list-style-type: none"> ➤ Corporate Planning Statement ➤ Academic Policy Statement APS15 - Open Learning (including e-learning) and Distance Education (including e-programmes) ➤ Revised Learning, Teaching & Assessment Strategy Document LTASv.3 ➤ Human Resources Policy Statement 31 - Homeworking
Middlesex University 2005, “Accreditation of Short Courses, Prior Learning,

Experiential Learning, Work Based Learning and Other Forms of Continuing Education and CPD” www.mdx.ac.uk/ [find exact URL]
Middlesex University 2005, “Human Resources Policy Statement: Homeworking” www.mdx.ac.uk/ [find exact URL]
Middlesex University policy (2006) http://www.intra.mdx.ac.uk/core/future/docs/corpplanstate0506.pdf
NESTA Futurelab (2004) Educational Research and the Design of Interactive Media – ESRC Seminar Series
Nichols M. 2003, “A theory for eLearning”, Journal of Educational Technology & Society – April 2003 Volume 6 Number 2 ISSN: 1436-4522 http://ifets.ieee.org/periodical/
QAA (2006): http://www.qaa.ac.uk/academicinfrastructure/codeofpractice/distancelearning/default.asp
Rees M. 08/09/05, The Guardian Online – “Doctor, doctor”, Kate Ravilious - p. 22
Rotblat J. 20/01/05, “Life Einstein issue”, p. 6 [quote related to string theory]
Sener J. 29/06/05, DEOS-L@LISTS.PSU.EDU , “Redeeming Transactional Distance Theory”
Shon J. 2002, “Standardization for eLearning” – Korea National Open University Press
Staley A (U. Central England, Learning Technology Development Unit 2004)
Stephenson J. (2004) Adapted from: http://www.johnstephenson.net/jsdownloads.htm
Viens J. 2001, InterTICES – Swiss Virtual Campus Report www.scedu.umontreal.ca/CRACTIC/LaRecherche.htm
Vrasidas C. 1999, “Principles of pedagogy and evaluation of web-based learning” Educational Media International. 37(2), 105-111
Waller V. 2004, “Does e-learning always bring home the bacon?” Learning Technologies Publications – www.learningtechnologies.co.uk
WCET 2004, “Balancing Quality and Access: Principles of Good Practice for Electronically Offered Academic Degree and Certificate Programs” – Western Cooperative for Educational Telecommunications Project - www.wcet.info/Projects/balancing/principles.asp
Wegerif R. 2002, “Literature Review in Thinking Skills, Technology and Learning” NESTA Futurelab [Find NESTA URL]
Lane D. 2006 “The Modern Scientist-Practitioner: A Guide to Practice in Psychology”, Routledge Press – ISBN 1-58391-886-8

Appendix Section

Appendix A

DfES eLearning Strategy Summary



Appendix B

CETWBL-ICT strategy Draft v.1.1b
Prepared by Anthony 'Skip' Basiel

2 November 2005

Suggested Action Plan – follows outline break down below

1) NCWBLP Website

Revamp of current site to modernise look and functionality

Work with MU web team to restructure current system

Closer link to MU home site

Be able to find NCWBLP and CETL-WBL via search engines and home page links

Maintain content – people & protocols

Checks and balance system to send revision to Pat B. & Janet B. with staff review/confirm

Link to software issue for Dreamweaver, etc.

Collaborate with MU Web team for CMS (Content Management System) integration

Pilot new system to help staff maintain their own areas

Update code to optimise search engine results (marketing)

Googleise the site (ie – add Web Ring of contacts: eg – Maritime site)

Update storage space for WebCT files (for students with access problems)

Update research and publication info.

Update MU Expert database

Consultants
and Second Supervisors
Get DProf. Network support system established
2) CETWBL Website
Maintain content – people & protocols
Work with MU web team to restructure current system
Collaborate with MU Web team for CMS (Content Management System) integration
Update code to optimise search engine results (marketing)
Link to other CETLs in England
Update research and publication info.
Update MU Expert database
Expand consultancy
3) WebCT/Oasis
Maintain content – people & protocols (ie annual diary)
Staff Training for new version (& overseas offices)
Strategy for adopting new WBL Oasis/WebCT templates (site clones)
Design, implement and pre-test sites (this should be done this year with a pilot group!)
Strategy for adopting new WBL Oasis/WebCT file management structure
Inductions for Overseas Offices
4) Video conference: Macromedia Breeze Live (web) and ISDN (conf. suite)
Maintain content – people & protocols
Pre-test dates for Cyprus – projects (Sem. 1 & 2)
Locations for set-up
Individual PCs in office
Group meetings (ie – Blue Room)
Staff Training for new version (& overseas offices)
Liaise with MU Breeze Consortium
Liaise with MU CCSS to support Breeze
Inductions for Overseas Offices
Liaise with MU Regional Directors
MU ISDN systems
Research options and emerging technologies
Need to have dedicated Laptop for WVC. (03-11-05 no laptops available)
5) Macromedia Breeze eContent (PPT-to-Flash)
Maintain content – people & protocols
Need to integrate with WebCT/Oasis
Staff Training for new version (& overseas offices)
Establish NCWBLP Staff Training Strategy
Link with MU Staff Training
Inductions for Overseas Offices
Link with NCWBLP Staff Training Strategy
6) CETWBL Capital Improvements (Soft/Hardware)
Strategy – people & protocols
Link with NCWBLP Staff Training Strategy
List of software (ie - PDF writer, Dreamweaver, Breeze v.5, etc.)
See pre-submitted lists
List of hardware (ie – Breeze 5 server, Tablet Notepads, etc.)
See pre-submitted lists (add: Conference phone with external speakers!)
NB: for all laptops, etc. we must *add batteries* in the plan for next year.
Distributed software services
Online survey tool (ie – www.surveymshare.com or done in Breeze?)
Virtual Duty Tutor – Web-bot natural language Help System
7) eContent Process
Training in Breeze PPT-to-Flash
Liaise with CETL Tools project in Midlands
Review System for proofing eContent
Tie in with existing Projects Data-base system
8) ICT Training (Staff Development)
Establish Annual Diary
Link to MU CPD?

Link to PC kit allocation?

New strategies and motivation techniques?

9) Follow-up on Network Bandwidth Test

Gwo (CCSS team) has said he is busy, but admits we have a problem

10) Other related ICT Issues

Team support - Ralph is gone! Janet's VLE position is not to be replaced! HELP!

Programme Planning – Excel sheet: Please review for next terms use.

WBL/eLearning Related Projects (proposals, etc.)

Get a licence / server for a Virtual Assistant – natural lang. web-bot Help System

Pre-testing systems

Back-up strategies

eLearning Awards?

Suggested Action Plan:

Short Term (1 -3 yrs.)

Form committees for each of the ICT Issues (ie – NCWBLP web site, WebCT, etc.)

Fix and Maintain all related ICT Issues specified

Design, implement and evaluate next generation ICT Specifications

Research projects and partners for networking and publication

Begin to get International Regional Offices more linked with ICT

DProf. Network graduates linked online

Medium Term (3 – 5 yrs)

Design, implement self-sustaining ICT strategy

Review ICT Soft/Hardware up-grades

Overseas offices should have strong ICT links

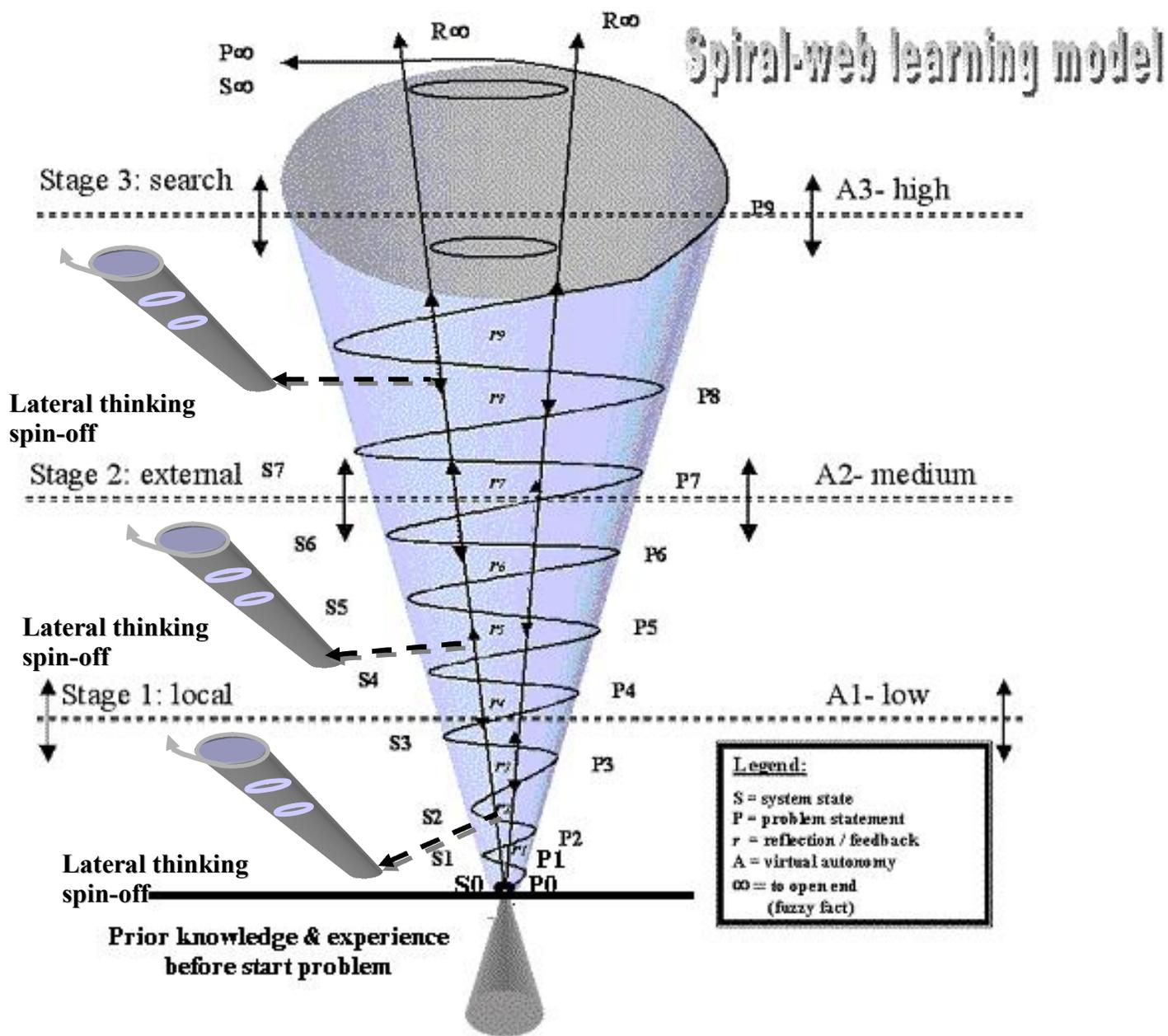
Strong DProf. Online Community

Long Term – After the CETL-WBL funds run out

Use funds from WBL/eLearning projects to expand networks to increase more projects

Design, implement and evaluate self-sustaining ICT strategy

Appendix C



Appendix D

VLE pedagogy -

There are some examples in literature examining online pedagogical issues concerning VLEs such as “Teaching and Learning Online: Pedagogies for New Technologies” (Stephenson, J 2001) and “A Framework for Pedagogical Evaluation of Virtual Learning Environments” (Britain, S & Liber, O 2001). These, however, tend to be the exception, not the rule. The following virtual learning environment models of use illustrate the wide variety of contextualisation in the area of online pedagogy.

According to Toole (2001), “...not enough is currently known about the pedagogy of online learning to evaluate the effectiveness of the different models in online learning.” Four examples are offered of online pedagogical models:

The conventional model is tutor-driven by lectures and assessed coursework. This model follows the standard academic year calendar.

The BOBO model (Batch-on batch-off) is tutor driven with integrated assessment. This system uses workbooks to deliver content.

The RORO (Resources-on Resources-off) shifts to a student-driven pedagogy. This model takes a modular approach with assessed coursework.

The campus assessment model is similar to the RORO model with an on-campus assessment.

The OPUS Project (Oxford University, UK 2002) presents three course models to support personalised e-learning [3.6]. ‘Unit 0’, an induction unit defining the structure of the model, precedes the following samples:

The Hybrid Course Model is typified by a diploma course in Computing. Ten percent is face-to-face (f2f) orientation with 90% distance delivery. The online part of the model supports information acquisition, elaboration, clarification and confirmation.

The Geography-independent Model, illustrated by an Advanced Diploma Course in Local History, is fully distance-based. This course design is a resource-based approach with online tutor support. The computer enabled group activities are complimented by multiple media (not only multimedia) online document delivery. A semi-synchronous online communication methodology is taken to support learning dialogue.

The Curriculum on Demand Model allows each student to follow a tailor-made course. This personalised e-learning approach conducts a needs analysis and assessment of prior learning. Learning components are then suggested to keep leaning content in small ‘chunks’ of appropriate information supported by metadata and concept maps. Continuous assessment and intense tutor support allow course modification. This design will be piloted in a medical module for Immunology.

Mason (1998) offers three generic online curriculum models:

Content and support model – static web content supplemented by e-tutorial support.

Wrap-around model – web course material is wrapped by activities of online discussion.

Integrated model – collaborative e-activities are supported by dynamic online content.

Britain and Biber offer a pedagogical evaluation framework for VLEs (University of Wales 2001). Their research suggests a holistic approach to evaluating commercial

VLE products highlighting the educational principles around which the systems were designed. Two models of evaluation were examined:
Conversation Framework (Laurillard, 1993 and Crawley 1999).
Viable Systems Model (VSM) (Beer 1981).

The conversation model focuses on interactions between individual students and tutors. This evaluation perspective helps identify if the nature of learning activities matches the conceptual domain between the tutor and the student. The extent that the VLE can support this process is evaluated.

The VSM model pinpoints how the software helps a tutor manage conversations and the construction of activities for large classes. These VLE examinations offer valuable information on the elements of existing VLEs. This research examines the design and construction of VLEs for instruction-based *and* research-based activity. The 'gap' in these models for use of VLEs is their application to 'research-based design'. According to Laurillard (2000), virtual project environments for research (or research-based web-learning systems) will be the 'next generation' of managed learning environments (MLEs) from current instructional-based systems [3.20].

In any of these models a software environment is needed to mediate the learning event. The next section discusses the rationale for using WebCt.