

A theory for eLearning

Moderator & Sumamrizer:

Mark Nichols

eLearning Consultant, UCOL
Palmerston North, New Zealand
M.Nichols@ucol.ac.nz

Discussion Schedule:

Discussion: 10 - 19 March 2003

Summing-up: 20 - 21 March 2003

Pre-Discussion Paper

There has been much written about eLearning practice however little attention has been given to eLearning theory. After arguing that a lack of established theory will hinder further development in eLearning, this paper presents ten hypotheses for eLearning in an attempt to focus attention on the underlying principles that apply to eLearning in all situations.

Over twenty years ago, Perraton remarked that “distance education has managed very well without any theory” (1981:13). The same can be said today of eLearning, though whether or not it has ‘managed very well’ may not be so accurate. Still, the incredible weight of published articles, institutional investment in practice and uptake of Web-based education tools in the past decade testifies that eLearning practice has achieved a momentum that will make it a central part of future education.

However the vast bulk of literature in eLearning is practice-based and is typically presented in a descriptive format. The majority of conference presentations consist of a ‘here’s what we did and here’s the evaluation’ format which do little for transferability to other institutions or even other courses. In addition, the body of literature appears fragmented and there are few common terms used consistently. It is unlikely that eLearning practice will continue to evolve unless the theoretical underpinnings of eLearning are explored and debated, providing a wider platform and a common philosophy for eLearning development. There are few examples of academic literature specifically concerned with eLearning theory and unfortunately the use of technology in education has tended to be technology-led rather than theory-led (Ravenscroft 2001). It is well stated by Watson (2001:251) that “the cart has been placed before the horse.”

Keegan (1983:3 cited in Holmberg 1997) suggested that theory could serve as a “touch-stone against which decisions – political, financial, educational, social – when they have to be taken, can be taken with confidence”. Keegan’s comments related to distance education, which now has a firmly established theoretical basis thanks to the efforts of such theorists as Moore and Kearsley, Lockwood, Holmberg, Peters, Rumble, Rowntree and Mason. At present there is no such ‘touch-stone’ for eLearning and there are few theorists who can be readily identified as authoritative.

If literature is likened to a ‘tree of knowledge’ about a particular subject the dire need for more eLearning theory becomes clear. Practice based research can be likened to the branches of the tree, those parts that are readily visible and most easily appreciated. Theoretical principles can be likened to the roots; they do not provide any practical things for people like shade or fruit and neither are they aesthetically pleasing. However it is the root system that determines the health of the tree and also the extent to which it can grow. Unless attention is given to eLearning theory, the branches cannot stretch out for fear of toppling the entire structure. Unless attention is given to eLearning theory, eLearning practice cannot develop fully. Without further debate and development in the theoretical underpinnings, we will be left with bonsai eLearning.

The truth of theory’s central role in the development of practice is recognized across all fields of activity. As Berger (2000) points out, “we tend to conduct life based on many theories that are below the level of conscious thought and accepted without examination. But, being conscious of theories and subjecting them to examination is essential because they are particularly important to change and learning.”

We can only test theories if we have them explicitly stated. The knowledge base of eLearning cannot be expanded with more accounts of how eLearning has been applied to particular courses. Only by further exploring

what lies beneath the surface of things, by investigating the root system, can we hope to provide eLearning with a more flourishing future.

What is a ‘theory’?

A theory can be described as a set of hypotheses that apply to all instances of a particular phenomenon, assisting in decision-making, philosophy of practice and effective implementation through practice. Theory provides a yard stick for evaluating practice, though it in turn may be adjusted by findings from practice that show the theory to be inadequate, as in Khun’s (1962) ‘scientific revolution’. Theories are therefore at the same time static and firm enough to build on for practitioners and living, dynamic and open to challenge by theorists. As Garrison (2000:3) states, “It is theory that provides a coherent ordering of relevant variables and relationships to guide both practitioners and researchers.”

Adjustments to theories might be minor or major. The former occurs when a particular hypothesis is found to have exceptions. The latter occurs when an hypothesis is found to be fundamentally flawed as occurred in physics once Newtonian models, which held sway for two hundred years, were discovered to be inadequate.

Theory can only be effectively communicated if a common set of terms is used and if their meaning is popularly adhered to. The terms below are defined to help provide further clarity to the hypotheses which follow.

Toward a common set of terms

- **Online learning** – this term describes education that occurs only through the Web, that is, it does not consist of any physical learning materials issued to students or actual face to face contact. Purely online learning is essentially the use of eLearning tools in a distance education mode using the Web as the *sole* medium for all student learning and contact.
- **Mixed-mode/blended/resource-based learning** – these terms interchangeably describe an approach to education that combines face to face and distance approaches to education in that an instructor or tutor meets with students (either in a face to face mode or through a technological means) and a resource-base of content materials and learning activities is made available to students. In addition, some eLearning approaches might be used.
- **eLearning** – the use of various technological tools that are either Web-based, Web-distributed or Web-capable for the purposes of education.
- **Learning object** – a digital file or tool that can be reused in eLearning contexts.
- **Learning Management System (LMS)** – a collection of eLearning tools available through a shared administrative interface. A learning management system can be thought of as the platform in which online courses or online components of courses are assembled and used from.
- **Interactive** – there are two types of interactivity, indicative and simulative. Indicative interactivity is typified by the use of button rollovers and site navigation. Clicking a button to start an animation or turn the page is indicative interactivity. Simulative interactivity is interactivity that enables students to learn from their own choices in a way that provides some form of feedback. The ability to select between different Web pages is indicative interactivity; the ability to fly a virtual plane in a realistic virtual environment is simulative interactivity.
- **Pedagogy** – this term is traditionally understood to refer to teacher-oriented instruction, however it is now increasingly used to describe the application of sound education practice (which encompasses so-called ‘androgogy’). In the paper below, it is used in the latter sense.

Ten hypotheses for eLearning

What follows is a set of general hypotheses or fundamental principles for eLearning. These are intended to provide a platform for debate.

Hypothesis 1:

eLearning is a means of implementing education that can be applied within varying education models (for example, face to face or distance education) and educational philosophies (for example behaviourism and constructivism).

This principle sets eLearning as a *means* of education as opposed to a *mode* of education. In other words, eLearning involves the use of a number of technological tools that can be applied in various contexts; it is not a distinctive educational system in itself. Therefore eLearning cannot be compared with face to face delivery or distance education because it can be used within either of these models. Instead, eLearning is a means by which these education models can be implemented. This hypothesis is confirmed by institutions such as the Open University, which uses eLearning as an adjunct to its “supported open learning” model (Eisenstadt and Vincent, 2000:xiii).

It is also possible to apply different education philosophies using eLearning. Students can be encouraged to construct their own knowledge using technology tools, and those same tools can also be used to present materials that deliberately lead students to pre-determined conclusions in highly structured ways. The use of technology in education has a significant history. Initially, computers were applied in behaviourist modes in accordance with Skinner’s work (Ravenscroft 2001), which emphasized the teacher’s control over what is learned and how it is to be learned. More recently, emphasis is on the constructivist use of technologies which provide students with opportunities to construct their own understandings. Skinner’s behaviourism, Piaget’s cognitive constructivism and Vygotsky’s social constructivism can all be facilitated through eLearning. Tam (2000) provides an excellent overview of how technology can be used for constructivist purposes.

However, it is also true that eLearning enables a form of educational convergence, thus:

Hypothesis 2:

eLearning enables unique forms of education that fits within the existing paradigms of face to face and distance education.

This is one of the more exciting aspects of eLearning – it enables new expressions of education that can potentially combine the strengths of face to face and distance forms of education in various ways using various technologies such as bulletin boards. It is acknowledged that eLearning changes the role of the instructor, particularly in online environments (Coppola et al 2002) and in blended modes however it is argued that this represents a more developed form of existing instructional methodologies. The realization of blended courses does not necessitate the creation of a new paradigm of education because blended courses draw on the same theoretical principles that belong to face-to-face and distance courses. Blended learning can be thought of as a new genus, not a new species; it is the result of evolution, not revolution (see for example Nipper 1989 for an account of how technology has resulted in new forms of distance education, and Garrison 2000 and Peters 2000 for an overview of distance education theory and its need to evolve).

The difficulty is what terminology to use in order to refer to these new forms of education. The term *mixed-mode* is commonly used to describe a blend of face to face and distance education that does not necessarily have a high technology component. Some prefer the term *resource-based learning* (Nichols 2001; Ryan et al 2001). Others, particularly in industry-based training, use the term *blended learning*. Weller (2002) provides a helpful framework for categorization of such courses based on the extent to which they are didactic/constructivist and make use of high/low levels of technology. It is clear that the distinction between purely online and partly online is an important one, and that the philosophical framework of a course is also; Weller’s framework is to be preferred when categorizing such courses.

Whichever term or categorization is used, the approach can only be used if purposeful education strategies are adopted. This leads to the third hypothesis:

Hypothesis 3:

The choice of eLearning tools should reflect rather than determine the pedagogy of a course; *how* technology is used is more important than *which* technology is used.

If eLearning is a means to education, then it can be applied in accordance with varying pedagogies (see Thorpe 2002). Weller (2002) lists the following as pedagogies:

- Constructivism
- Resource based learning
- Collaborative learning

- Problem based learning
- Narrative based teaching
- Situated learning.

Technology is pedagogically neutral and can therefore be applied quite merrily to all of the pedagogies listed above. It follows then that the poor implementation of technology must reflect poorly implemented pedagogy, or an over-estimation in technology's potential (or a blend of the two). The selection of education approach or philosophy is therefore more important than the selection of the technology itself. If this hypothesis is indeed true, then the responsibility for eLearning failure rests on those who chose the technology tools to use and how they were implemented.

However the reverse is also true. Effective pedagogical decisions can make simple technologies extremely useful. There are multiple examples that illustrate this (such as the Open University's use of the simple online discussion forum CoSy documented by Mason, 1989 and the *Reintroduction of the Wolf* scenario described by Jonassen et al 1997, which makes use of nothing more complicated than linked Web pages), and many communities of practice throughout the globe who collaborate and communicate effectively through simple text-only listservs. These testify to the fact that *how technology is used* is more important than *which technology is used*.

Closely related to this is the next hypothesis.

Hypothesis 4:

eLearning advances primarily through the successful implementation of pedagogical innovation.

As a general rule it will be breakthroughs in teaching practice that will make eLearning more useful and not breakthroughs in technology, though the latter can provide opportunities for the former. As noted by Laurillard (2002), instructional designers should drive eLearning, not technologists. Those who are innovative educators will be those who maximise eLearning and ensure its further development. Reeves (2002) argues that, in the main, technology is not being used innovatively in education. It is both a strength and a weakness that technology can sit quite comfortably within current approaches to education; it is a strength in that we can stay with those educational practices that we are most used to, but this is also its weakness.

Ravenscroft (2001:134) argues that "we cannot truly transform educational practice for the better through using new technologies unless we examine the roles the computer can play in truly stimulating, supporting and favouring innovative learning interactions that are linked to conceptual development and improvements in understanding." Future progress in eLearning will come from a better understanding of the dynamics of teaching and learning and not from more improved or functional technology, though as mentioned the latter does provide opportunities for new, innovative pedagogies to develop.

All of this means that eLearning practitioners need to scan technological developments in the context of the substantial resource base available in the fields of psychology and education. The principles of cognitive development found in such literature is directly relevant to eLearning because, as Horton (in Islam 2002:23) rightly states, "E-learning doesn't change anything about how human beings learn."

Hypothesis 5:

eLearning can be used in two major ways; the presentation of education content, and the facilitation of education processes.

The fundamental applications of eLearning include digital materials storage and distribution (presentation) and synchronous and asynchronous communication, simulative interactivity, multimedia, and access tracking (processes) – each of which is subject to multiple applications of use and innovation.

In other words eLearning can both make information available and play a part in students' self-construction of knowledge (see also Boot and Hodgson, 1987). It is important to note that technology is *not* content, and technology is *not* process; rather, it can be used to provide access to both.

It is important to note that this hypothesis only describes eLearning tools as they are currently available. Further advances in technology will lead to the revision of this particular hypothesis.

Hypothesis 6:

eLearning tools are best made to operate within a carefully selected and optimally integrated course design model.

Practice-based literature is at least clear that the ‘build it and they will come’ approach does not work with online discussion boards, for example, however making resources and grades available to students online does make them accessible when they otherwise may not be. Beyond these simple enhancements it can be confidently stated that it is not sufficient to simply add eLearning tools on to an existing course if eLearning’s true benefits are to be realized (Oliver 1999). Instead, attention must be given to the contribution eLearning can make to learning so that any use of eLearning becomes a seamless component of the overall course design and delivery package.

Research already supports this hypothesis. Clear design is a feature of successful online learning (Swan 2001), and a responsive instructor who facilitates learning and encourages students to explore their learning at a conceptual level is a must for effective conceptual change (Ramsden, 1992). There is evidence that learners require prompting from an instructor for conceptual reflection to occur (Hartley 1998 in Ravenscroft 2001). Oliver (1999) lists content, learner supports and learning activities as the three critical design elements for online teaching and learning. There is general agreement across existing education literature that collaborative dialogue and communication with instructors are major contributors toward successful learning; Nichols (2001) adds further course design considerations (a variety of learning resources, opportunities for reflection and simulative interaction) and proposes a course design framework within which technology can be made to work effectively.

Hypothesis 7:

eLearning tools and techniques should be used only after consideration has been given to online vs offline trade-offs.

This is a very important step that ensures that file sizes are appropriate, students are able to continue their studies if they are away from a computer, the family phone line is not continuously tied up for dial-up Web access, etc. It may be more appropriate to provide certain materials on paper or CD-ROM rather than over the Web in many cases.

In general, the Web is best used for communications such as notices, updates, asynchronous and synchronous discussion, and for content that is frequently updated or only becomes available during the actual course. It is prudent to make other materials such as Word documents, slideshows and relatively static content offline, either on CD-ROM or paper (or both). It is also possible to make video and audio materials available on CD-ROM or tape (or both).

Eventually, when (or if) the wireless revolution takes place and portable digital devices are commonplace and bandwidth is no longer an issue, this hypothesis will still stand – only its practice will need to change.

Hypothesis 8:

Effective eLearning practice considers the ways in which end-users will engage with the learning opportunities provided to them.

Understanding end-user behaviours is an important step toward effective eLearning. The consequences of making materials or learning opportunities available through eLearning should be carefully considered. As an example some institutions do not provide any printed materials, preferring instead to make all things available on a CD-ROM or online. For many students who do not like to read from a screen or cannot take their desktop computers away on holiday with them for the weekend, such a move requires them to print the materials out. Distributing online activities throughout a one hour study session will also require a student studying from home to either frequently dial up to the Internet or else stay online for the entire period; better practice would be to anticipate such activities and instead combine all online activities in one section.

Another consideration here is the question, how do you make the most of online discussion? Understanding some of the characteristics of students using online discussion applications for the first time enables moderators to better plan online discussion activities and exercises (see Salmon, 2000). A consideration of the end-user helps in the construction and execution of eLearning courses.

Hypothesis 9:

The overall aim of education, that is, the development of the learner in the context of a predetermined curriculum or set of learning objectives, does not change when eLearning is applied.

In other words, the curriculum is still king. Hypothesis 1 establishes eLearning as a means; development of the learner in the context of the curriculum is still the end. As put by Idrus (2000), “The tools have change[d], the job hasn’t.”

eLearning tools can certainly be used to encourage students to further explore topics on their own and take ownership of their learning. It is often desirable to assess things such as bulletin board participation in order to encourage the sharing of ideas online, for example, however caution is required. The curriculum still needs to be the point of reference. If participation in a bulletin board is not relevant to the curriculum, then its use as an assessment tool should be questioned. Overall it is how the students measure against the learning objectives, not whether or not they can use the technology that will determine their success in the workplace. The curriculum, not their use of technology, is the standard.

Hypothesis 10:

Only pedagogical advantages will provide a lasting rationale for implementing eLearning approaches.

As educators we can take no other position. Institutional, societal and political advantages do not automatically lead to better student learning. Eisenstadt and Vincent (2000:xi) reserve the advantages of technology for those applications built on sound pedagogy: “Evidence continues to confirm that the Web, as with other technologies and media, can be successfully exploited provided that the educational need to which it is applied is identified first.”

Institutional, social and political expediencies may be helpful to justify eLearning investment, but they are not sufficient on their own. There must also be a conviction that technological tools improve teaching and learning to ensure long-term commitment to their use, and to ensure appropriate implementation.

Conclusion – room to grow

If eLearning is to have an effective future beyond much of the hype and experimentation that reflects much of the existing literature, it is vital that its theoretical underpinnings be made explicit and available for critique. As we practice eLearning, it is essential that we reflect on those transferable principles of our practice that will be of benefit to others. We must research to establish theory not evaluation, principles not practices, pedagogies not applications. Only then will a literature base be developed that can be applied across multiple institutions and education settings.

Ravenscroft (2001:150) remarks that “given that the pace of change of educational technology is unlikely to slow down, the need for relatively more stable and theoretically founded interaction models is becoming increasingly important.” The more debate that can take place about eLearning theory, the more prepared practitioners will be as the continuous winds of technology development blow and as institutional, political and social seasons change.

References

Berger, J. (2000). The importance of theory, <http://www.suite101/article.cfm/8806/54817>

- Boot, R., & Hodgson, V. (1987). Open learning: Meaning and experience. In Hodgson, V., Mann, S., & Snell, R. (Eds) *Beyond distance teaching – towards open learning*, UK: Open University Press, 5-15.
- Coppola, N., Hiltz, S., & Rotter, N. (2002). Becoming a virtual professor: pedagogical roles and asynchronous learning networks. *Journal of Management Information Systems*, 18 (4), 169-189.
- Eisenstadt, M., & Vincent, T. (2000). *The knowledge web: Learning and collaborating on the Net*, UK: Kogan Page.
- Garrison, R. (2000). Theoretical challenges for distance education in the 21st Century: A shift from structural to transactional issues. *International Review of Research in Open and Distance Learning*, 1 (1), <http://www.icaap.org/iuicode?149.1.1.2>.
- Idrus, R. (2000). The pedagogical issues in e-learning. *New straits times/management times*, August 28, 2000.
- Islam, K. (2002). Is e-learning floundering? *e-learning*, May, 22-26.
- Jonassen, D. H, Dyer, D., Peters, K., Robinson, T., Harvey, D., King, M., & Loughner, P. (1997). Cognitive flexibility hypertexts on the Web: Engaging learners in meaning making. In Khan, B. H. (Ed.) *Web-based instruction*, New Jersey: Educational Technology Publications, 119-133.
- Khun, T. (1962). *The structure of scientific revolutions*, Chicago: Chicago University Press.
- Laurillard, D. (2002). Design tools for eLearning. *Keynote address at the 19th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE)*, December 6-8, 2002, Auckland, New Zealand.
- Mason, R. (1989). An evaluation of CoSy on an Open University course. In Mason, R., & Kaye, A. (Eds.) *Mindweave: Communication, Computers and Distance Education*, Oxford: Pergamon Press, <http://icdl.open.ac.uk/lit2k/external.ihtml?loc=http://icdl.open.ac.uk/literaturestore/mindweave/mindweave.html>.
- Nichols, M. (2001). *Teaching for learning*, Palmerston North: TrainInc.co.nz.
- Nipper, S. (1989). Third generation distance learning and computer conferencing. In Mason, R., & Kaye, A. (Eds.) *Mindweave*, Oxford: Pergamon Press, 63-73.
- Oliver, R. (1999). Exploring strategies for online teaching and learning. *Distance Education*, 20 (2), 240-254.
- Peters, O. (2000). Digital learning environments: New possibilities and opportunities. *International Review of Research in Open and Distance Learning*, 1 (1), <http://www.icaap.org/iuicode?149.1.1.7>.
- Ramsden, P. (1992). *Learning to teach in higher education*, London: Routledge.
- Ravenscroft, A. (2001). Designing E-learning Interactions in the 21st Century: revisiting and rethinking the role of theory. *European Journal of Education*, 36 (2), 133-156.
- Reeves, T. (2002). Storm clouds on the digital education horizon. In Williamson, A., Gunn, C., Young, A., & Clear, T. (Eds.) *Keynote address at the 19th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE)*, December 6-8, 2002, Auckland, New Zealand.
- Salmon, G. (2000). *E-moderating: The key to teaching and learning online*, London: Kogan Page.
- Swan, K. (2001). Virtual interaction: Design factors affecting student satisfaction and perceived learning in asynchronous online courses. *Distance Education*, 22 (2), 306-331.
- Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. *Educational Technology & Society*, 3 (2), 50-60.

Thorpe, M. (2002). Rethinking learner support: The challenge of collaborative online learning. *Open Learning*, 17 (2), 105-119.

Watson, D. (2001). Pedagogy before technology: Re-thinking the relationship between ICT and teaching. *Education and Information Technologies*, 6 (4), 251-266.

Weller, M. (2002). *Delivering learning on the Net*, UK: Kogan Page.

Post-Discussion Summary

Introduction

Over twenty years ago, Perraton remarked that “distance education has managed very well without any theory” (1981:13). The same can be said today of eLearning, though whether or not it has ‘managed very well’ may not be so accurate. The vast bulk of literature in eLearning is practice-based and is typically presented in a descriptive format. The majority of conference presentations consist of a ‘here’s what we did and here’s the evaluation’ format which do little for transferability to other institutions or even other courses. In addition, the body of literature appears fragmented and there are few common terms used consistently. It is unlikely that eLearning practice will continue to evolve unless the theoretical underpinnings of eLearning are explored and debated, providing a wider platform and a common philosophy for eLearning development.

If literature is likened to a ‘tree of knowledge’ about a particular subject the dire need for more eLearning theory becomes clear. Practice based research can be likened to the branches of the tree, those parts that are readily visible and most easily appreciated. Theoretical principles can be likened to the roots; they do not provide any practical things for people like shade or fruit and neither are they aesthetically pleasing. However it is the root system that determines the health of the tree and also the extent to which it can grow. Unless attention is given to eLearning theory, the branches cannot stretch out for fear of toppling the entire structure. Unless attention is given to eLearning theory, eLearning practice cannot develop fully. Without further debate and development in the theoretical underpinnings, we will be left with bonsai eLearning.

Discussion centred around ten statements that aimed to set a theoretical foundation for eLearning practice (these were formerly called ‘hypotheses’ but this was changed as a result of feedback from Peter Twining and Martyn Wild). These statements are described in this summary, along with the comments from IFETS subscribers that helped to further shape them. Unfortunately it is not possible to include all points in this summary; what follows are those points that have significantly led to either the validation or adjustment of the ten statements.

1. *eLearning is a means of implementing education that can be applied within varying education models (for example, face to face or distance education) and educational philosophies (for example behaviourism and constructivism).*

While some seemed to challenge whether or not this statement is needed, it does place eLearning firmly in place within education theory. No argument was produced that the statement requires revision.

2. *eLearning enables unique forms of education that fits within the existing paradigms of face to face and distance education.*

This statement was not explicitly addressed in the discussion however Brent Muirhead, Eric Flescher and William Klemm proposed various keys to online teaching that fitted nicely into either a face to face or distance education context, illustrating the validity of this statement.

3. *Whenever possible the choice of eLearning tools should reflect rather than determine the pedagogy of a course however as a general rule how technology is used is more important than which technology is used.*

Bev Trayner raised an interesting issue here that has led to the change in wording for this statement. Often the technology that we use in education is based on the designer of the software’s pedagogical assumptions.

4. *eLearning advances primarily through the successful implementation of pedagogical innovation.*

A brief exchange between Mary Hall and Derek Chirnside about what an ideal learning management system would be capable of added validity to this statement.

5. *eLearning can be used in two major ways; the presentation of education content, and the facilitation of education processes.*

There was no disagreement with this particular statement.

6. *eLearning tools are best made to operate within a carefully selected and optimally integrated course design model.*

In response to a point raised by Stephen Downes, this statement needs elaboration to make it clear that “open minded and undesigned” learning (serendipitous learning) is not excluded.

7. *eLearning tools and techniques should be used only after consideration has been given to online vs offline trade-offs.*

There were no comments made about this particular statement.

8. *Effective eLearning practice considers the ways in which end-users will engage with the learning opportunities provided to them.*

Dr Eric Flescher mentioned his research into how learners interact with simulations; Eric’s research suggests that learners need to be provided with some form of structure if they are to successfully engage with them. This is consistent with this particular statement.

9. *The essential process of education, that is, enabling the learner to achieve planned learning outcomes, does not change when eLearning is applied.*

This statement received the most thorough going over and has also been significantly reworded (with thanks to Bill Williams for the suggested wording). The main change is the removal of the term ‘curriculum’. Stephen Downes, Bill Williams and Bronwyn Hegarty raised the concern that a curriculum is outcome oriented whereas learning is process-oriented. This was an interesting avenue of debate that should be continued in a future exchange; of particular interest is the extent to which the ‘rules’ of institutionalised learning can be significantly challenged simply because we add technology-assisted learning processes into the mix. Mary Hall suggested that the criticisms were valid “when applied to the concept of ‘learning’, which may be informal, unstructured, spontaneous, without plan or purpose” but that they may not be so strong when the institutional imperative was considered. I am certain that there will be many readers who participated in the debate who might still be unsatisfied with the wording of this statement.

10. *Only pedagogical and access advantages will provide a lasting rationale for implementing eLearning approaches.*

The addition of the words “and access” to this statement are in response to Lora Kaisler who pointed out that eLearning can make learning more convenient (and even possible) for many learners.

Issues for further discussion

As with most interesting discussions more questions are created as potential answers are suggested. Four of the major issues for further discussion are itemised below; each would be worthy of a pre-discussion paper and ensuing exchange.

- Is a separate theory for eLearning necessary? This question was first suggested in Charles Nelson’s initial message. Charles was concerned that it was possible to substitute the term ‘learning’ for eLearning in the pre-discussion paper and have it still make sense. It seems that the best justification for a theory of eLearning is that so many seem to practice eLearning without making reference to the considerable body of education theory that is directly relevant. An eLearning theory can at least point practitioners to education principles. A further question is, what type of theory is needed? David Jones cited a paper by Gregor (2002) who categorises five different types of theory.

- Is technology really different? What is really new in learning because of technology, and what just evolves? This question was prompted by Gary Miller; if technology's use can be likened to having a set of 'power tools' rather than 'hand tools', to what extent do the fundamentals of learning change because we have technology available to us in education?
- Do we really agree on definitions? A number of definitions were proposed in the pre-discussion paper (only one of which was discussed by Derek Chirnside, that of interactivity). There were several comments during the discussion relating to the semantic minefield that is eLearning; terminology is certainly one area of eLearning that needs urgent attention.
- Next, the role of the curriculum was briefly discussed in the comments associated with statement nine but it is worth mentioning again. Is the need for a curriculum over? Is it really a limiting factor for eLearning, or does it add necessary boundaries, enable the awarding of qualifications and a serve as a transparent guide to what is important?

While it is not possible to fully validate each of the statements in this summary paper, they have proven robust thus far and will hopefully be of assistance to those seeking to implement eLearning on a firm theoretical foundation.

References

- Gregor, S. (2002). Design theory in information systems. *Australian Journal of Information Systems*, 9, 14-22.
- Peraton, H. (1981). A theory for distance education. *Prospects*, 11 (1), 13-24.