

E-TRAINING OR E-LEARNING?

Towards a synthesis for the knowledge-era workplace

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Abstract: Many E-training environments and processes are based on participatory learning models in which participants share their understandings and aim to develop new insights into their workplace knowledge through discussion, questioning, mentoring and personal reflection. Knowledge production is assumed to occur through the cumulative effect of these actions. However, equally likely outcomes include the sharing of ignorance or the development of erroneous understandings. Cognitive and social views of learning posit, however, that humans learn by thinking (not just by interacting), and that unless this is explicitly taken into account in developing training programs, optimal learning outcomes may not be achieved. This paper examines the importance of incorporating cognitive and social-learning perspectives in E-training environments in order to maximise the potential for optimal learning to occur, and provides suggestions for a synthesis of participatory and cognitive models.

Key words: learning models, cognition, collaborative learning

1. FOUNDATIONS

The Western schism between ‘teaching’ and ‘training’ arose from differing epistemological and philosophical positions extant in school and workplace education. These have manifested themselves in models of pedagogy and andragogy respectively (Knowles, 1980). There is an implicit notion that pedagogy and andragogy are almost mutually exclusive constructs — a position now being challenged as educators and trainers strive to achieve the common goal of developing effective E-learning or E-training programs. In the workplace, this has forced trainers to address ‘educational’ issues such developing higher-order thinking, and working

outside of competency-based paradigms. It has also forced teachers and planners to view learning as a life-long process that needs better links between school and workplace learning.

Many E-training environments and processes that are not competency-driven are based on learning models, such as Action Learning (Revens, 1979), in which participants share their understandings and aim to develop new insights into their workplace knowledge through the *actions* of discussion, questioning, mentored and personal reflection — the production of knowledge is assumed to occur through the cumulative effect of these actions. Action Learning is an example of a participatory learning model (PLM) in which learning comes from active participation in a learning process. How new, as opposed to recontextualised, knowledge arises in this model is problematic. There is little inherent certainty in such an approach as equally likely outcomes include a sharing of ignorance and the development of erroneous understandings.

Cognitive learning models (CLM) posit, however, that humans learn by thinking, not just by interacting, and that unless this is *explicitly* taken into account in developing training programs, optimal learning outcomes may not be achieved. CLM are characterised by *an acquisitive metaphor of learning, in which individuals acquire and accumulate concepts* that are basic knowledge units to be acquired and refined over time.

Action Learning models *could* include *explicit* cognitive elements, but they usually don't. They almost exclusively assume that cognitive facilitation will occur serendipitously through the 'action' of interacting with other participants and through mentoring, rather than explicitly providing mechanisms for it to occur. The 'knowledge-era' paradigm and its associated notions of life-long learning have challenged these long-standing traditions.

The following sections provide an exploration of these implications of these issues for a holistic design approach that embraces both training and learning models as currently conceived. Finally a model is proposed that provides a new focus for instructional design.

2. A NEW SYNTHESIS?

Many contemporary Western E-learning pedagogies are based on a variety of social-learning models that emphasise the importance of context, situation and the social construction of knowledge through collaborative processes (e.g., Guzdial & Kehoe, 1998; Nicholson & White, 2001). They often have superficial similarities to Action Learning, but in these newer models, new understandings are taken to develop through the purposeful

socially-mediated development of cognitive processes (e.g., Wu, Farrell, & Singley, 2002). These differ from CLM because they allow for socially constructed and mediated understandings, and accept that understanding develops in context and culture, rather than as the acquisition of predefined concepts (cf. CLM). For the purposes of this paper, they will be referred to as social-learning models (SLM).

While our understandings of learning have developed rapidly, this is not true about our understandings of ‘training’. For example, many contemporary training materials that are developed from andragogical action-oriented perspectives fail to explicitly address ‘learning’ issues — whether cognitively, collaboratively or socially constructed — as a central part of their design (cf. Anderson, Greeno, Reder, & Simon, 2000) though they often address them in peripheral ways. A common example is the confusion (or misconception) of the process role of mentors or facilitators with that of providing cognitive facilitation.

There is no argument that learning models that are not explicitly focused on cognitive issues may serendipitously lead to rich cognitive learning outcomes — indeed it would be worrying if this were not so — but rather, that because they often lack specific strategies and features to facilitate cognitive development, they are sub-optimal designs for effective training (and learning) — especially when the desired outcomes include addressing the kinds of complex and super-complex issues (Barnett, 1999) facing many organizations today (Zuboff, 1988). The kinds of cognitive competencies required of workers in such organizations include the ability to:

- analyse claims, opinions and complex situations;
- make critical judgements of alternative views;
- evaluate and synthesise a variety of positions into a coherent whole;
- meet strategic challenges facing their organization.

In the 1990’s these were deemed to be solely the province of so-called knowledge workers, but as the knowledge-era paradigm has become better understood, they are increasingly seen as being essential competencies for all life-long learners. The related belief that acquiring these kinds of cognitive competencies need to be addressed in both school and workplace contexts, blurring the distinction between training and learning. Operationalizing this notion requires that both learning and training be reconceptualized as part of a continuum, with a common knowledge base.

Many contemporary E-learning and E-training programs adopt a passive view of learning and focus on individual learning, rather than as interactive and engaging — important attributes for the promotion of higher order learning. Likewise, in the case of Action Learning, many of its processes mimic social-learning models, but fail to explicitly address cognitive learning issues. In both cases, a refocusing on the attributes of the

underpinning learning model can allow cognitive perspectives (e.g., a focus on higher-order thinking) to be included. However, this does not mean that this is a ‘simple’ process, because in both cases there are significant implications as to the ways in which the delivery of the program, and learning support have to be resourced and organised.

A blended solution, in which purposeful cognitive strategies support interactive and social learning (e.g., Nicholson & White, 2000, 2001, 2002), is an essential precursor for maximising the potential for optimal learning and training to occur, particularly when the focus is on the higher-order thinking and understanding of complex ideas discussed above (e.g., Lally & De Latt, 2002). There are clear pathways for incorporating aspects of CLM in participatory training program models — to simply add particular elements such as cognitive scaffolding. However, maintaining a differentiation between learning and training in a knowledge-era context may be pointless from both epistemological and design perspectives.

With the increasing focus of E-training on knowledge-era workplace issues, and of E-learning focus on real-world contexts, we can expect to see a convergence of models (Figure 1) as they both attempt to achieve similar kinds of outcomes (e.g., higher-order thinking) but in different contexts and with differing degrees of generalisation or specificity.

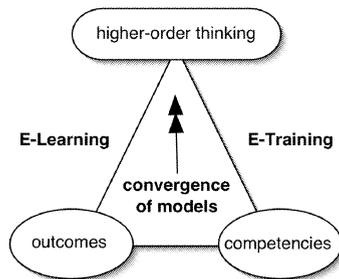


Figure 1. Convergence between E-learning and E-training models with change in focus to higher-order thinking

Arguably, in a genuine knowledge-era context, there would be no difference between them except, perhaps, for competency-based programs that might by their very nature serve to perpetuate an underlying differentiation. This suggests that there should be a new, or perhaps renewed, emphasis on developing effective learning models for both school and workplace learning, with the essential differentiation being in the context rather than the methods used to achieve learning outcomes, i.e., that

cognitive aspects of learning should be central to both education and training models.

This is not to argue against adult-learning models and andragogy, or to reject the need for child-centred pedagogies, but rather to suggest that it would be more fruitful to regard them as one aspect of life-long learning, and to attempt to articulate a more holistic range of conceptually coherent models of learning within a life-long learning framework. There are many barriers to be overcome before any such solution is possible. Some will be due to institutional and corporate inertia, but the biggest barrier will be overcoming deeply enmeshed epistemological and philosophical positions.

3. ESSENTIAL FOCI FOR PROGRESS

In order to move forward on the issues raised above, it is necessary to provide guidelines to both educators and training developers that can (a) accommodate their differing contexts and (b) provide an overarching conceptual model that can be applied to developing holistic life-long learning strategies and synergies. In order to accomplish this, there are at least three essential educational and theoretical foci that must be explored, in order to inform the effective implementation of such a program:

1. Developing adaptive designs for social learning contexts.
2. Defining the attributes of rich environments for active, socially mediated collaborative learning environments.
3. Developing explicit scaffolding mechanisms, models and standards.

These three foci are meta-level tasks that require significant insight into a range of theoretical and practical considerations. The following discussion explores some key dimensions of each in order to provide some insight into their nature.

3.1 Designing for social learning

In addressing the issue of identifying adaptive social-learning models, it's helpful to have an appropriate conceptual meta-framework such as the layered-design model in Figure 2. (Nicholson & White, 2001)

Its purpose is to shift thinking about E-learning and E-training development away from technical and process considerations (such as structuring learner interactions) to focusing on the learners' development of expertise in a rich environment for active learning. The design 'layers' are intended to focus attention on four separate, and essential, foci:

- a) technical aspects of the design;

- b) the nature and purposes of the ways in which learners will interact with the course content, other participants, and external individuals;
- c) the pedagogical structures and processes that will build upon the interactions to develop expertise in the particular learning context;
- d) the culturally sensitive and authentic assessment processes that need to be developed to ensure the attainment of expertise can be evaluated in a meaningful, as opposed to simplistic, manner.

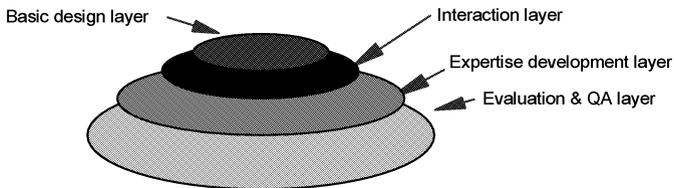


Figure 2. Layered design model for E-Training. (Nicholson & White,2001)

By including expertise as a design element, and by differentiating it from technical design and learner interaction, it allows learners' needs and contexts to be paramount and accommodated in developing learning designs. It also facilitates the possibility of accommodating socio-cultural elements as a central design feature. For example, a 'standard' online unit built in, say, WebCT might be implemented at the design level as a set of files, organisers and links according to some predetermined instructional model and pedagogical design. Traditionally this constitutes the design process, with the student interacting with content by email or discussions.

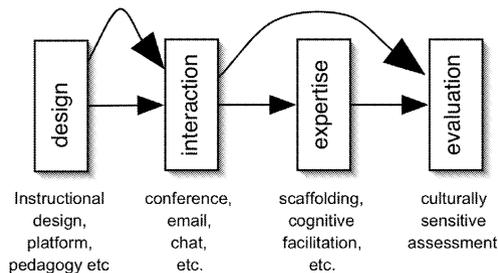


Figure 3. Relationship of design layers to learning sequence. Most E-learning courses bypass the expertise development layer as indicated by the top sequence of arrows.

The top arrows in Figure 3 indicate this learning pathway. In this pathway there is no engagement with the expertise layer, which is where cognitive facilitation, socio-cultural elements, and perhaps other aspects such as learning styles would be accommodated. This shows that E-learning designs may easily overlook the need for developing expertise unless it is an explicit design element. However, a focus on culturally sensitive expertise is arguably the most critical design element of all, and the area in which there are the least theoretical and practical guidelines to shape research and development.

Simply planning structures and processes such as learning sequences, discussions, and online seminars to engage learners with content is insufficient to facilitate higher order thinking. In this model, most of what occurs in action learning programs is located in the interaction ‘layer’. For example, in the absence of explicit cognitive strategies in action learning, the mentors and facilitators’ inputs into the groups’ learning would be regarded as largely ‘interactive’ – providing direction and reacting to learners, but not necessarily focused on explicit cognitive development. By decoupling interaction from learning (i.e., the development of expertise), it is easier to focus on nature of cognitive facilitation as an element of expertise development, and the need to address it in practice.

3.2 Scaffolding

Scaffolding refers to helping learners tackle cognitive issues they could not address in its absence—to move through their zone of proximal development (Vygotsky, 1978). Little has been done in this area in E-learning or E-training contexts, and as it is at the heart of cognitive facilitation, there is a need for urgent research and development to create scaffolding toolkits—repertoires of diagnostics, strategies, tools, and tactics to support learners overcome their hurdles. There is a real need to see how scaffolding techniques might need to be adapted to different stages of life-long learning, and also how effective classroom practices might be adapted to the needs of industrial contexts. In particular, there is an urgent need to develop standards-based learning objects for scaffolding. Without agreed standards and a related ontology, development in this area will remain fragmented.

4. CONCLUSION

A convergence of training and learning models, and major changes to the nature of educational and training institutions, can be expected to occur as the ramifications of the knowledge-era paradigm impact on society. An

effective response to these changes requires a cross-domain understanding of a range of technical, educational and psychological factors. The three foci presented in this paper are critical areas in which to commence a systematic response to these presumed challenges.

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BIOGRAPHY

Paul Nicholson has research interests in the design and use of ICT-based quality learning environments for developing higher-order thinking and in promoting quality learning. Recent research and development has focused on developing models of intelligent E-learning environments, on implementing quality online learning programs for executive management

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