# Connectivity

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A fundamental characteristic of digital technologies is that they are networked and connected, providing users, tools and resources with a plethora of ways to interact. This connectivity is immense, forming in a sense a global neural network of information, dialogue and exchange; arguably we now have the capacity on a global scale to achieve Salomon's notion of distributed cognition (Salomon, 1993). The potential of such a vast, intelligent network for learning is clear, offering a plethora of ways in which learners and teachers can access and interact with information, and to communicate and collaborate. Nonetheless, the sheer complexity of the network also brings challenges. Despite the fact that arguably anything an individual wants to learn is available somewhere on the net, accessing a particular resource of relevance may be challenging to say the least. Furthermore, developing an appropriate digital identity online is a particular digital literacy skill learners and teachers need to develop. Being part of this network of others means information can travel globally instantaneously.

Learners and teachers need to make informed choices about how they communicate and need to recognise that what they are saying may go beyond their known bounded community. Think for example of the power of the Twitter network. One tweet sent to 3,000 followers, may then be retweeted beyond that community to thousands of others. Table 1 lists some of the benefits and disadvantages of connectivity in terms of the implications for learning.

**Table 1. The implications of learning in a connected environment.**

| Benefits | Disadvantages |
| --- | --- |
| Global | Loss of individual identity |
| Multiple forms of communication | Loss of individual voice |
| Multiple forms of representation | Need for new sense making skills |
| Interconnected, horizontal, no hierarchical structure | Complex, no clear simple or correct route through |
| Instantaneous | Danger of superficiality |
| Rich mechanisms for shared discourse | Danger of convergent memes dominating |
| Cultural diverse | Danger of cultural hegemony |
| Diversity of offerings, the 'long tail' | Fragmentation |

The recent experience and evaluation of Massive Open Online Courses (MOOCs) gives us some insights into the implications of learning in a global, connected environment. The number of learners who sign up for these courses is impressive (many thousands), the numbers who complete are much less so and indeed there is a marked downturn in participation as the courses progress. The 'course organisers' state that learners can participate with the course in a range of ways and that there is no standard learning pathway through. Therefore they can contribute to discussion forums or wikis, post comments on social networks, publish blog posts and comment on the blog posts of others. The organisers argue that this is a truly emancipatory style of learning, enabling each individual to create their own Personal Learning Environment. There is no single route through a MOOC, they are horizontal, distributed and evolving by nature, offering a mechanism for supporting Rhizomatic Learning (Cormier, 2008; Cormier, 2011). The scale of the course means that participants can communicate with learners on a global scale. The design of MOOCs is learner centred, with no central teaching role.

Evaluation of participants' experience of these courses is mixed. Whilst many value the concept and joined partly out of curiosity to see what interaction in such an open and connected learning network would be like, many quickly became disillusioned, finding it difficult to keep up. The sheer scale of MOOCs (which arguably have no beginning and no end) was bewildering for many, and it was all too easy to get lost or confused by the plethora of resources and communication channels.

Recognising that learning now takes place in this rich dynamic ecology of technologies is a fundamental challenge facing educators and in particular has implications for how learning is designed for in this context. How can we take account of the affordances of technologies in terms of their connectivity? How can we design to take account of the fact that the learning context is constantly changing and evolving, with new connections being made, and certain learning pathways being foreground over others? How do we minimise the risks associated with a connected environment? How do we avoid some of the pitfalls outlined above, such as loss of individuality or voice, fragmentation, superficiality, convergence of thought, and cultural hegemony? Finally, how can we design given the sheer complexity? Is design in any meaningful way possible?

## *Connectivity – a scenario for the future of learning*

What would a scenario of the future look like where the potential benefits and affordances of connectivity were fully exploited for learning? Essentially we would be in a position of an evolving ecology of learners co-constructing and applying their understanding to address complex and tricky real-life challenges. At a meta-level, the collective understanding of the network would be greater than the sum of the individual parts. Residues of learning would reside in the network, leaving a digital learning trail of evolved understanding. A truly rhizomatic learning network (Cormier, 2011), horizontal, evolving, networked and intelligent; constantly adapting to its environment and capitalising on the expertise of both Actants and Non-Actants in the network (Latour, 2005), i.e. learning would distributed between humans and tools, forming a meta-distributed cognition (Salomon, 1993). By its nature it would be adaptive, able to respond to changing contexts. Learners could tap into the network as and when they needed. Formal educational roles (such as teacher and student) would no longer have resonance. Each individual would adopt different roles in different scenarios, asking for help as a learner in one context, providing expertise as a teacher in another. Participation would be as important as acquisition (Sfard, 1998). Participants in the network would also be co-designers, helping to evolve and shape the network.

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