Forms of learning: from apprenticeship to sustainable learning

Womack, et al., (1990) identified an evolutionary process from the craft production system to the mass production system to a lean production system. It is argued here that the next stage in this evolutionary process will lead to a sustainable production system. Furthermore, we may identify corresponding learning systems associated with the different production systems.

Individual apprenticeship in a craft learning system may be described as a form of learning in which knowledge and understanding are acquired principally through individual ‘learning by following’. There is significant scope for individual attention and guidance, but the learning is constrained by the specificity of the location, limited resources, and the limited numbers of learners that can be accommodated.

Mass schooling in a mass learning system disseminates knowledge and understanding through ‘learning by instruction’ in relatively large groups. It is location bound and constrained by narrow limits on learning methods and resources, and severe limits on individual attention and guidance.

Mass customised learning in a lean learning system promotes knowledge and understanding through ‘learning by tailored instruction’ on an individual or group basis. There are greater possibilities for individual attention and guidance, and a wider range of opportunities, methods, settings and resources available to individuals or groups, that are less constrained by location.

Sustainable learning in a sustainable learning system is a form of learning in which knowledge and understanding are acquired principally through ‘learning by choice’, based on a wide range of sustainable opportunities, methods, settings and resources available to every individual or group, unconstrained by location. Most significantly, it will be based on a learning system that also seeks to be cost effective, environmentally friendly, ethically responsible and focused on enhancing societal well-being (see Cheah, 2002).

Towards a Sustainable Learning System

Learning systems have evolved from the craft learning system (CLS) dominant in pre-industrial economies, to the mass learning system (MLS) that has dominated the industrial economies. In the 21st century, the imperatives of sustainability will contribute to further changes that will evolve eventually into what may be termed as a sustainable learning system (SLS).

The SLS will benefit from the use of the new information and communication technology. This will change the dynamics of the learning and communication process radically. It will provide the capacity for decentralised learning, de-scaling, better use of local resources and skills, reduced environmental harm, improved energy efficiencies, and lower capital/labour ratios. In combination these benefits will be revolutionary. The outcomes for product or service delivery in this shift from MLS to SLS will be manifested in at least eight distinct dimensions: (a) location (b) time, (c) variety, (d) material, (e) price, (f) provider, (g) scale, and (h) focus. Specifically:

Location: In the 21st century, the possibility for large and relatively rapid capital, technology and other resource flows to various locations in the world mean that learning opportunities and activities can be more widely diffused. One important consequence will be the progressive shift from isolated or stand-alone systems to inter-connected systems. This leads to the emergence of distributed networks, which are both fully functional as well as connected. The emergence and diffusion of distributed learning networks is leading to a tendency where flexible learning systems can potentially be set up anywhere and reach everywhere.

Time: In the SLS the desired learning opportunity, resource or service will be available at any time. To facilitate this possibility, the learning system will need to create “real-time structures; structures that change continually in tiny increments, not in large static quantum jumps. Each change is so minute that the overall effect is one of a structure in constant, seamless motion” (Davis, 1987, p.41). In this situation, flexible learning services and opportunities would become available anytime and all the time.
Variety: The SLS will also feature an increasing range and diversity of learning options, resources and services that evolve into mass customised learning. In the ultimate, learners will be able to access any kind of learning opportunity, resource or service tailored to their specific desires or specifications. This will be associated with the ability of diversified learning providers to offer a large range of niche learning services and opportunities.

Material: The SLS will also be associated with the development of learning options, resources and activities that use less or no physical material. This may be illustrated by the encapsulation of the 32-volume contents of Encyclopaedia Britannica (plus dictionary and world atlas) within one DVD-ROM. This spatial contraction has generally been accompanied by increased product capability, functionality, sophistication and, consequently, value. Miniaturisation, increased portability and online delivery mean that transportation constraints are reduced tremendously, such that learning products and services can be delivered more flexibly.

Price: The SLS will benefit from a deflationary tendency, and from a growing number of products and services becoming available at no charge. This will have major significance for widening access to learning opportunities, because cost barriers can be lowered significantly and, in a growing number of cases, eliminated completely. In this context, learning will become an ‘public good’.

Provider: In the SLS, an increasing range of learning materials and options will be self-made or self-serviced; that is, there will be a growing capacity to shift from ‘do (make) it for me’ to ‘do (make) it yourself’, when information, knowledge and production and learning capabilities become more widely diffused. This tendency would also lower significantly the minimum scale for learning activities, increase flexibility and responsiveness, increase competition and innovation, enhance the capabilities of small learning providers, and strengthen their ability to organise learning ‘anywhere’, ‘anytime’, of ‘any kind’.

Scale: The SLS will be significantly more scalable, both upwards and downwards. The former will enhance the ability to cater better to large numbers of learners, where this is necessary. The latter will help to increase tremendously the number of learning providers. Furthermore, decreasing economies of scale, increasing economies of scope and other processes, described above, will contribute to the lowering of barriers to entry for small learning providers. This will also lead away from dominance by large mega-institutions, and towards a tendency for learning to be organised and managed by smaller diversified learning providers.

Focus: In the SLS, the economic imperative will be complemented by the ecological imperative, the social imperative and the ethical imperative. These will constitute the quadruple bottomline that will set new benchmarks for behaviour, performance and expectations in the learning process. The consequence will be a more balanced approach to learning, to include a focus on more environmentally friendly, more socially conscious and more humane learning objectives. Learning to improve economic prospects will be balanced by learning to promote a capacity for ‘sustainable abundance’ (see Cheah and Cheah, 2002).

Conclusion

The principal outcomes of the new learning system will lead to learning opportunities that are potentially available ‘anywhere’, at ‘anytime’, of ‘any kind’, with ‘no matter’, at ‘no charge’, and you can ‘do-it-yourself’. These systems will be highly scalable and sustainable. They will have the potential to resolve many of the difficulties that, until now, have impeded learning for a large proportion of the world’s population.

To effect this evolution from mass schooling to sustainable learning, the first major challenge is to be able to visualise these possibilities ex ante, when they are still at an early or embryonic stage. The next major challenge is to work for the metamorphosis that will transform the possibility for widely accessible, flexible, affordable, effective and sustainable learning opportunities into reality.

References


