The learning curve

Where e-learning meets established pedagogy

This chapter explains where online learning and communities fit into prevailing theories on learning. It examines:

- behaviourist, constructivist and cultural theories

- how these theories apply online

If learning is the acquisition of knowledge and skills and online learning means that this takes place through the use of technology, then the process might be thought to be relatively straightforward to unpick.

However, learning is a complex process and there have been many theories describing how it might be brought about. Behaviourist, constructivist and cultural (or collaborative) learning theories have been in and out of fashion over the last 50 years. Added to that, the online world is constantly changing.

The online e-learning facilitator toolkit brings to life the theories covered in the following pages.

The following table shows how the various recognised pedagogic theories look when transferred to an online context.

Toolkit

The theory

Learning message

E-learning uses technology to enhance traditional skills and processes.

Theory	Key theorists	Online activities
Behaviourist: conditioning 'Learning is change in behaviour'	Skinner (1954)	Online, this involves instruction followed by a reinforcement of online responses. Drawbacks of this approach are that incorrect responses are not dealt with since there are no diagnostic or remedial strategies. There is no space for reflection and intervention by the student.
Behaviourist: programmed learning 'Learning is change in behaviour'	Gagne (1974)	Programmed learning varies in complexity in terms of task design, allowing the conditions for learning in the programme to be engineered to meet different objectives. It is a development of the previous method but still involves instruction, drill and practice. It is often too pre-structured, allowing little initiative by the student or any recognition of student difference.

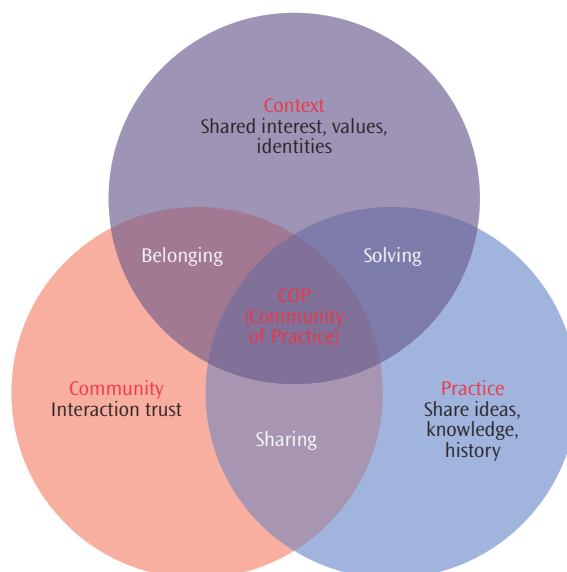| Theory	Key theorists	Online activities
Cognitive: **constructivist** **'Learners construct their understanding of the world through their interactions with it'**	Piaget (1971) Papert (1980)	Constructivism places an emphasis on learner-centred and discovery activities. These allow knowledge assimilation, accommodation and construction. Papert created LOGO to provide opportunities for experimentation, reflection and abstraction. Pure online discovery is too abstract and it has been shown that learning needs to be grounded in terms of context. It also needs to be guided and supported.
Cultural: **social constructivist** **'Learning occurs in a social context'**	Vygotsky (1978)	This links higher order thinking, the influence of the situation and the role of someone who scaffolds the learning process for the learners in an online tutoring activity. The language used in the dialogue, the context in which the dialogue takes place (including the tutor and the community) influence learning and therefore need to be considered in designing the online activity for scaffolded learning.
Cultural: **reflective practice** **'Learners reflect on interaction between theory, context and values in their practice'**	Schön (1983, 1987)	This places the emphasis on supporting the learner in cyclical planning, acting, evaluating and re-conceptualising an activity or situation. Key elements to be considered are the learners' theories, values and context as they interact to affect practice. Online reflection helps the learner to make the influence of these explicit in text. Bringing about this deep reflection is challenging online.

Theory	Key theorists	Online activities
Cultural: **situated learning** **'Learning as legitimate peripheral participation in an authentic activity'**	Brown, Collins and Duguid (1989) Lave and Wenger (1991)	This states that constructive collaborative learning needs to take place in real situations. These activities need to allow reflection, abstraction and generalisation in an instructional dialogue. Transferability of such learning to different situations was seen to be challenging.
Cultural: **e-learning communities** **'Learning takes place within a participation framework not in an individual mind'**	Wenger (1998)	Online communities are structured for sociability and learning. Knowledge embedded in the members can be shared if there is mutual engagement, joint enterprise, a shared repertoire and negotiation of meaning in practice. The challenge is to stimulate and promote engagement in social practice online. Not enough emphasis is placed on informal learning and there is little recognition that learning occurs both in a participation framework and in an individual participant's mind.
Cultural: **activity theory** **'Learning occurs within and between the activity systems an individual belongs to, involving sense-making and potential for change**	Engestrom (1987, 2001)	Meaning arises during collaborative online interactions within and between systems. Tools, roles and rules in the systems influence learning outcomes for individuals and communities. The theory is useful for analysis and can give useful insights about how learning has taken place but may be of less use in suggesting design possibilities at the commissioning stage of a new online activity for learning.

Mayes and de Freitas (2003) state that there are really:

no models of e-learning per se … only enhancements of models of learning using technology to achieve better learning outcomes, a more effective assessment of these outcomes or a more cost-efficient way of bringing the learning environment to the learners.

In other words, learning online refines existing models of learning – we do not need to create new models to explain it. If we believe that to be true, then we need to be very clear about the underlying assumptions contained in each theory because, in an online environment, we need to be particularly clear about the purpose and design of learning activities.

- The behaviourist perspective of online learning emphasises: task completion and the achievement of sequences of component knowledge and skills. It provides a highly focused set of objectives or learning competences.

- The constructivist perspective emphasises: conceptual development by building understanding of broad principles. The aim is to enable people to understand how to learn and to encourage the development of autonomous learners.

- The cultural perspective looks at the influence of the context of learning. It focuses on creating collaborative learning outcomes and on building relationships between people by, for example, collaborative problem-solving.

Context
Shared interest, values, identities

Belonging

Solving

COP
(Community of Practice)

Community
Interaction trust

Practice
Share ideas, knowledge, history

Sharing

Toolkit

The theory

Collaborative learning

find out more

The design implications of the three theoretical strands are:

• The behaviourist view needs clear goals and feedback on achievement in routines of organised activity. It requires individual paths through the routines to be set out, based on the individual's prior performance.

• The constructivist view requires interactive environments for the construction of understanding. Learning activities should encourage supported experimentation and the discovery of broad principles.

• The cultural view needs environments of participation in social practices of enquiry and learning. Support for development of identities as capable and confident learners is needed. Dialogue should facilitate the development of learning relationships and thinking skills.

Most approaches to e-learning will include a mixture of elements that emphasise all these theoretical approaches. Behaviourists' strategies can be used to teach the 'what' (facts), constructivist strategies can be used to teach the 'how' (processes and principles) and cultural strategies can be used to teach the 'why' (higher level thinking that promotes personal meaning and situated and contextual learning).

talk2learn offers many examples of this **mixed approach** in action. A community built along the lines of talk2learn is, we believe, more likely to appeal to the widest range of learners precisely because it encapsulates a variety of approaches to learning.

For further information, references and guidance, go to
www.ncsl.org.uk/elearningfacilitationtoolkit