The Nature of Learning: Using Research to Inspire Practice

Principles for the learning environment

The learning environment recognises the learners as its core participants, encourages their active engagement and develops in them an understanding of their own activity as learners

- An effective learning environment is one that puts learning at the centre. It encourages students to become "self-regulated learners", able to monitor, evaluate and optimise their acquisition and use of knowledge. To be able to regulate their own emotions and motivations during the learning process.

- Recognising learners as the core participants in no way diminishes the key role of teachers. They have the primary responsibility, individually and collectively, for the learning that takes place.

- The gap between the "technical core" *(i.e.* classroom teaching) and the formal organisation in which it is located and the wider policy environment is critical. It might risk reducing learning effectiveness and innovative capacity.

The learning environment is founded on the social nature of learning and actively encourages well-organised co-operative learning

- Individual knowledge construction occurs throughout processes of interaction, negotiation and co-operation. Neuroscience shows that the human brain is primed for interaction and learning depends on interacting with others.

- There are robust measured positive effects of co-operative forms of classroom learning when it is done properly. Despite this, such approaches still remain on the margins of much school activity.

- The ability to co-operate and learn together should be fostered as a "21st century competence", quite apart from its demonstrated impact on measured learning outcomes.

The learning professionals within the learning environment are highly attuned to the learners' motivations and the key role of emotions in achievement

- The emotional and cognitive dimensions of learning are inextricably entwined. It is therefore important to understand not just learners' cognitive development but their motivations and emotional characteristics as well.

- Yet attention to learner beliefs and motivations is much further away from standard educational thinking than goals framed in terms of cognitive development.

- Being highly attuned to learners' motivations and the key role of emotions is not a call to be "nice" – misplaced encouragement will do more harm than good – but is first and foremost about making learning more effective, not more enjoyable.

- The success of many approaches using technology, co-operative learning, inquiry-based learning and service learning lies in the capacity to motivate and engage learners.

The learning environment is acutely sensitive to the individual differences among the learners within it, including their prior knowledge

- Students differ in many ways: prior knowledge, ability, conceptions of learning, learning styles and strategies, interest, motivation, self-efficacy beliefs and emotion, as well in linguistic, cultural and social background.

- A fundamental challenge is to manage such differences, while at the same time ensuring that young people learn together within a shared education and culture.

- Prior knowledge is one of the most important resources on which to build current learning as well as one of the most marked individual differences among learners. Understanding these differences is essential to understanding the strengths and limitations of individuals and groups of learners, as well as the motivations that shape the learning process.

- Families serve as the major conduit by which young children acquire fundamental cognitive and social skills. Prior knowledge is critically dependent on the family and other sources of learning and not only what the school or learning environment imparts.

The learning environment devises programmes that demand hard work and challenge from all without excessive overload

- Each learner needs to be sufficiently challenged to reach just above their existing level and capacity and no-one should be allowed to coast for significant time on work that does not stretch them.

- Overload and regimes based on excessive pressure do not make for effective learning. Learning is constrained by capacity limitations of the human information-processing architecture.

The learning environment operates with clear expectations, uses assessment strategies consistent with these expectations and strongly emphasises formative feedback to support learning

- Assessment is critical for learning and defines the cognitive demands of the work students are asked to undertake. It provides "the bridge between teaching and learning" When assessment is authentic and in line with educational goals it is a powerful tool in support of learning; otherwise it can be a serious distraction.

- Formative assessment is a central feature of the learning environment of the 21st century. Learners need substantial, regular and meaningful feedback; teachers need it in order to understand who is learning and how to orchestrate the learning process.

- There are strong links between formative assessment practices and successful student learning. Such approaches need to be integrated into classroom practice to have such benefits.

The learning environment strongly promotes "horizontal connectedness" across areas of knowledge and subjects as well as to the community and the wider world

- Complex knowledge structures are built up by organising more basic pieces of knowledge in a hierarchical way; discrete objects of learning need to be integrated into larger frameworks, understandings and concepts.

- One of the defining features of 21st century competences is the connectedness that comes through developing the larger frameworks so that knowledge can be transferred and used across different contexts and to address unfamiliar problems. Learners are often poor at transferring understanding of the same idea or relationship in one domain to another.

- Meaningful real-life problems play a key role in bolstering the relevance of the learning being undertaken, supporting both engagement and motivation. Inquiry- and community-based approaches to learning offer extensive examples of how this can be done.

- An effective learning environment will at the least not be at odds with the influences and expectations from home; better still, it will work in partnership with them.

A demanding educational agenda

These "principles" provide a demanding framework and all should be present in a learning environment for it to be judged truly effective. They define an educational agenda that is:

- **Learner-centred**: the environment needs to be highly focused on learning as the principal activity, not as an alternative to the critical role of teachers and learning professionals but dependent on them.

- **Structured and well-designed:** to be "learner-centred" requires careful design and high levels of professionalism. This still leaves ample room for inquiry and autonomous learning.

- **Profoundly personalised**: the learning environment is acutely sensitive to individual and group differences in background, prior knowledge, motivation and abilities, and offers tailored and detailed feedback.

- **Inclusive:** sensitivity to individual and group differences, including of the weakest learners, defines an educational agenda that is fundamentally inclusive.

- **Social:** The principles assume that learning is effective when it takes place in group settings, when learners collaborate as an explicit part of the learning environment and when there is a connection to community.