The 7 Principles of Learning

This project has explored the nature of learning through the perspectives of cognition, emotion, and biology, and provided analyses of the implications for different types of application in learning environments. The research was synthesized to create seven transversal "principles" to guide the development of learning environments for the 21st century.

1 Learners at the centre

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.

- Learners are ***the*** central players in the environment and therefore activities centre on their cognition and growth.
- Learning activities allow students to construct their learning through engagement and active exploration.
- This calls for a mix of pedagogies, which include guided and action approaches, as well as co-operative, inquiry-based, and service learning.
- The environment aims to develop "self-regulated learners", who:
  - develop meta-cognitive skills
  - monitor, evaluate and optimise the acquisition and use of knowledge
  - regulate their emotions and motivations during the learning process
  - manage study time well
  - set higher specific and personal goals, and are able to monitor them.

2 The social nature of learning

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

- Neuroscience confirms that we learn through social interaction – the organisation of learning should be highly social.
- Co-operative group work, appropriately organised and structured, has demonstrated very clear benefits for achievement as well as for behavioural and affective outcomes. Co-operative methods work for all types of students because, done well, they push learners of all abilities.
- Personal research and self-study are naturally also important, and the opportunities for autonomous learning should grow as students mature.

3 Emotions are integral to learning

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

- Learning results from the dynamic interplay of emotion, motivation and cognition, and these are inextricably intertwined.
- Positive beliefs about oneself as a learner in general and in a particular subject represent a core component for deep understanding and "adaptive competence".
- Emotions still tend to be regarded as "soft" and so their importance, though accorded in theory, are much more difficult to be recognised in practice.
- Attention to motivations by all those involved, including the students, is about making the learning first and foremost more effective, not more enjoyable (though better still if it is both).

4 Recognising individual differences

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

- Students differ in many ways fundamental to learning: prior knowledge, ability, conceptions of learning, learning styles and strategies, interest, motivation, self-efficacy beliefs and emotion; they differ also in socio-environmental terms such as linguistic, cultural and social backgrounds.
- Prior knowledge – on which students vary substantially – is highly influential for how well each individual learns.
- Learning environments need the adaptability to reflect these individual and patterned differences in ways that are sustainable both for the individual learners and for the work of the group as a whole. Moving away from "one size fits all" may well be a challenge.

5 Stretching all students

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

- Being sensitive to individual differences and needs also means being challenging enough to reach above their existing level and capacity; at the same time, no one should be allowed to coast for any significant amount of time.
- High-achieving students can help lower-achieving students, which helps stretch all learners.
- This underscores the need to avoid overload and de-motivating regimes based on grind, fear and excessive pressure—not just for humanistic reasons but because these are not consistent with the cognitive and motivational evidence on effective learning.

6 Assessment for learning

The learning environment operates with clarity of expectations using assessment strategies consistent with these expectations; there is a strong emphasis on formative feedback to support learning.

- The learning environment needs to be very clear about what is expected, what learners are doing, and *why*. Otherwise, motivation decreases, students are less able to fit discrete activities into larger knowledge frameworks, and they are less likely to become self-regulated learners.
- Formative assessment should be substantial, regular and provide meaningful feedback; as well as feeding back to individual learners, this knowledge should be used constantly to shape direction and practice in the learning environment.

7 Building horizontal connections

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

- A key feature of learning is that complex knowledge structures are built up by organising more basic pieces of knowledge in a hierarchical way. If well-constructed, such structures provide understanding that can transfer to new situations—a critical competency in the 21st century.
- The ability for learners to see connections and "horizontal connectedness" is also important between the formal learning environment and the wider environment and society. The "authentic learning" this promotes also fosters deeper understanding.