

EMOTIONAL LEARNING

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Synonyms

Affective Learning, Emotional Intelligence, Social Learning, Learning by Feeling, Emotional Factors in Learning, Emotional Dimensions of Learning.

Definition

Emotional learning is related to one of the three domains identified in Bloom's taxonomy of learning (Bloom, 1956). Bloom identified, cognitive, affective, and psychomotor as the three domains of educational objectives. The cognitive domain is described by Bloom as, “the recall or recognition of knowledge and the development of intellectual abilities and skills”. The affective domain is described as, “objectives which describe changes in interest, attitudes, and values, and the development of appreciations and adequate adjustment”. Lastly, the psychomotor domain refers to the motor-skills or behavioural skills that constitute the relationship between cognitive process and the physical movement in education (San Jose and Kelleher, 2009). The term *Emotional learning* has been defined as “an increasing internalization of positive attitudes toward the content or subject matter” (Scott and Wheelless, 1975. Stancato and Hamachek, 1990) defined it as “the attitudes and feelings that students have about themselves”.

Emotional Learning is associated to two fundamental concepts: *Emotional Intelligence (EI)* and *Social and Emotional Learning (SEL)*. Emotional Intelligence is the capacity or ability for somebody to identify, assess, and control his emotions or the emotions of others. Social and Emotional Learning consists in learning how to manage feelings and relationships with others. This includes ways to also recognize emotions and to maintain positive relationships in developing sympathy and empathy.

Many researchers of Human Behaviour and Learning have helped to evolve the meaning of *emotion* from a synonym for *affect* to a deeper understanding that while *emotion* is an affective state, not all affective states are emotions (McLeod, 1997). There is little agreement on how to define the term (Stricker, 2009), the word became associated across a wide range of contradictory concepts and phenomena involving affect and feelings (Owens and Maxmen, 1979).

Theoretical Background

The main elements of an EI model were set by Salovey and Mayer (1990), then by Goleman (1995). The model is based on four abilities: (1) Perceiving emotions: how to detect and understand emotions through images of faces, voices, pictures, cultural elements. (2) Using emotions: how to use emotions for facilitating cognitive activities, thinking and problem solving. (3) Understanding emotions: how to understand variations of emotions. (4) Managing emotions: how to regulate emotions and exploit emotions to achieve intended goals.

Goleman outlined five emotional skills for SEL: (1) Self and other awareness: understanding and recognizing feelings and their changes, the impact of actions on feelings, and the difference between thinking, feeling and acting. (2) Mood management: controlling strong variations of feelings of anger. (3) Self-motivation: continuing positively the actions towards established goals. (4) Empathy: taking care of someone's emotions and cognitions. (5) Management of relationships: resolving conflicts, establishing friendships and collaborative learning.

In the early sixties, Piaget (1962) predicted the important role of emotion in learning: "At no level, at no state, even in the adult, can we find behaviour or a state that is purely cognitive without emotion nor a purely emotional state without a cognitive element involved. In the late 20th Century, affect grew in importance with investigations on the ways people acquire, interpret, shape and sharpen information via thinking and affective skills.

Many researchers have explored the link between cognition and emotional dispositions where humans approached thinking and learning. Some of the results show strong connections according to specific contexts. The main insights emerged from social cognitive theory research on the role played by several dispositions across creative, critical and self-regulated thinking. The dispositions explored as synthesized by Stricker (2009) are listed below:

1. Seeking clarity and precision when information is unclear.
2. Trying to be well informed.
3. Seeking reasons for what you believe.
4. Taking into account the total situation.
5. Carefully analyzing information.
6. Remaining open-minded.
7. Taking a position (and changing it) when the evidence is sufficient to do so.
8. Showing sensitivity to the feelings, level of knowledge, and degree of sophistication of others.
9. Resisting impulsivity.
10. Engaging intensely in tasks even when answers or solutions are not immediately apparent.

11. Pushing the limits of one's knowledge and abilities to keep improving on one's knowledge and skills.
12. Generating, trusting, and maintaining one's own standards of evaluation.
13. Generating new ways of viewing a situation outside the boundaries of standard conventions.
14. Planning.
15. Being sensitive to feedback.
16. Evaluating progress.
17. Making use of available resources.

In certain contexts, humans can form mental positions about learning and associate it to a strong emotion. They reflect a mental attitude for evaluations of good, bad, or neutral. Mental attitudes can play an important role in how a human views, engages, and values a learning context.

From a physiological point of view, the amygdala is involved with the creation and storage of emotional reactions and events. When for instance fear or anxiety happen they send signals to the amygdala which store the event into memory associated with the anxiety state. A similar event will raise similar emotional states. Memorizing emotions will maintain typical synaptic connexions triggering symptoms of anxiety or fear if the event occurs again.

There is a strong relationship between emotion and social knowledge structures. Several research works show that knowledge is essentially situated; it depends on the context in which it is actively constructed and reconstructed through interactions, time of reflexion and the process of interpretation (Rogoff & Lave, 1984). Knowledge is also dependent on 'the point of observation' of the human which simultaneously shapes and is shaped by social reality (Stricker, 2009).

Deeper understanding about the way knowledge is embedded in context and the media allowing its expression has been explored by many researchers on human learning (Bransford, et. al., 2000). There is a deep connection between humans and technology via the use of personal and cultural tools now supporting human minds, senses, and bodies (D'Mello et al., 2009; Heraz and Frasson, 2008).

Moreover, there is growing research interest on the symbiotic connection between human minds and digital tools making possible phenomenal capabilities via interconnected and distributed ways of knowing and learning. For example, new media digital technologies can affect learning in several fundamental ways. Electronic texts can have hypertext providing for multi-dimensional and less linear-oriented interaction between the learner and content (Stricker, 2009).

Programs of SEL have been set up in some universities or institutes to enhance students' self-awareness, social awareness, self regulation, collaborative behaviours, together with positive attitudes and emotional states such as happiness, optimism, and altruism. The goal is, through a series of exercises and practices, to calm students' minds, concentrate their attention, make them more aware of their environment and others.

Important Scientific Research and Open Questions

As emotional learning is based on emotions one of the important open questions remains on the difficulty to identify precisely the emotional state of the learner. Different methods such as face recognition, questionnaires, detection from physiological sensors are used and can be combined. They still lack of relevance. What is the intensity of the emotion expressed by a smile? How to assess or estimate the intensity of emotions? What is the duration of an emotion? The transition from an emotional state to another depends on various factors and first of the learner. The duration of moods depends on several parameters such as the personality of the learner, the chemical state of the brain, the influence of emotional intensity of events. Induction of emotions to improve learning has to be quantified in order to be controlled. Several investigations need to be undertaken in this area.

In order to advance education, intelligent learning environments and human-computer interfaces by optimally coordinating cognition and emotions, considerable research has been undertaken but it has not completely investigated students' emotional processes or affective learning (Woolf et al., 2007).

New pedagogical strategies based on emotion management and control need to be used in teaching and learning. The value-added of EL and SEL in knowledge acquisition imply to investigate, develop, and integrate emotional strategies to complete and enhance the cognitive aspects of actual educational programs. Effective assessment and reliable data will be essential to create structures and conditions for SEL.

In particular, social learning requires creating social structures and programs to improve understanding of SEL components. Integration of these programs into the educational system is a first challenge. Measurement of the positive effects on the students remains a second challenge.

Impact of social learning is effectively difficult to establish as it concerns various parameters to consider: improvement of knowledge acquisition, of behavior, relationships with the environments, cooperation, and conflict resolution. Time is necessary to gather enough pertinent data to assess the contribution of these approaches.

Finally a new track of research in emotional learning concerns advanced capabilities of the brain submitted to subliminal cues (Chalfoun et Frasson, 2009).

Cross-References

[Additional] Related entries in the Encyclopedia of the Sciences of Learning; please find the complete list of all contributions at <http://oesys.springer.com/ESL> by going to “download current List of Contributions as a PDF document”.

- Affective Dimensions of Learning
- Anxiety, Stress and Learning
- Emotion-based Learning
- Learning by Feeling
- Learning to Feel

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