

The impact of emotions on learning processes

A neurological and educational
perspective

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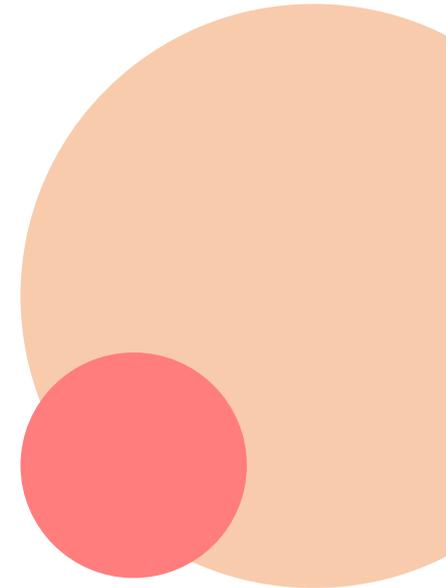
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What are emotions?

Biological states associated with the nervous system, that affect our thoughts, feelings, motivation, behavioural and physiological responses, as well as the sense of pleasure or displeasure (Kleinginna and Kleinginna, 1981).

Important in encoding new information as well as retrieving information on subsequent events and allowing individuals efficiently to generalize new events and make decisions (Panksepp, 1998).

Seeking

Rage

Fear

Lust

Care

Panic

Play

Moods

Feelings

Affects

Drives

Evolutionary perspective

Is it a play situation or a threat situation?

Should I fight or flight?

Is the other a friend or an enemy?



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Do emotions impact learning?

Emotion has a significant influence on the human cognitive processes.

The impact on **attention** and **memory** is strongly linked to learning processes.

The effects of emotion on learning and memory are not always univalent



Most of the studies report that **positive emotions** facilitate learning and contribute to academic achievement (Um et al., 2012).



It has been reported that **confusion** (a cognitive disequilibrium induced by contradictory data) can support learning (D'Mello et al., 2014)

Low levels of non-chronic **stress** (Vogel and Schwabe, 2016) can improve learning because of an increased focus of attention seeking understanding.



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Seeing emotions - neuroimaging techniques

Direct measurement

Electroencephalography (EEG)

Indirect measurement

Functional Magnetic Resonance Imaging (fMRI)

Positron Emission Tomography (PET)

Functional Near-Infrared Spectroscopy (fNIRS)



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The brain interaction with emotions and learning

Tertiary process

Higher cognitive functions

Cortical regions

Secondary process

Learning and memory

Basal ganglia

Primary process

Emotions

Amigdala

INPUT

2

3

1

Emotion is not a simple linear event...

It is a **feedback process** that autonomously restores an individual's state of equilibrium



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The brain interaction with emotions and learning

Emotion

Processes related
to the body

Emotional Thought

The platform for learning,
memory, decision-making,
creativity in social and nonsocial
contexts

Cognition

Rational Thought



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Emotions in the classroom

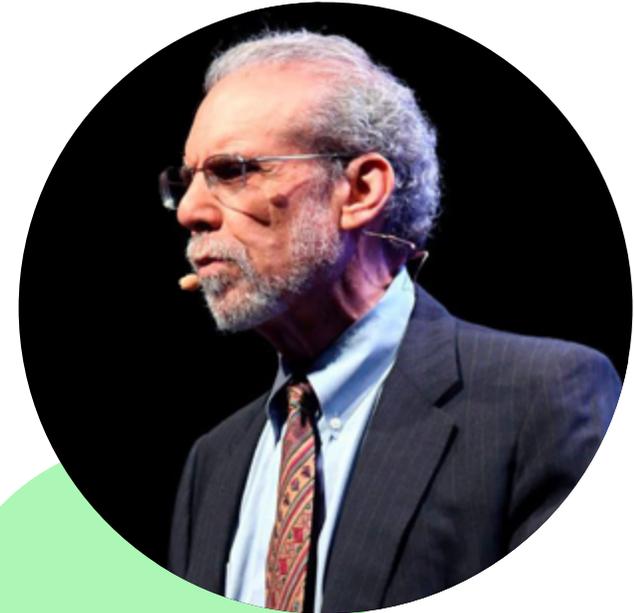
Emotional intelligence

Daniel Goleman is an American psychologist who helped to popularize emotional intelligence.

Emotional intelligence is the ability to **perceive, evaluate** and **manage** one's own emotions, to distinguish different emotions and to name and define them correctly, and to **use emotional information to guide thinking and behavior**.

It is composed by five key elements:

1. **Self-awareness**
2. **Self-regulation**
3. **Motivation**
4. **Empathy**
5. **Social skills**



**Daniel
Goleman**



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Emotions in the classroom

Students

All students will experience frustration and failure to achieve their goals. One element of Emotional Intelligence, namely **self-regulation** of emotions, it is very important for them in coping with these emotions.

We distinguish two kind of regulations:

- **Emotion oriented regulation:** it addresses the physiological process triggered by emotions. Solutions include relaxation techniques, naming emotions, focusing on the body sensations, directing attention away from specific emotion, or, in some cases, prescribed drugs.
- **Appraisal oriented regulation:** based on the development of self-confidence and task value to address positively academic challenges.

Self control of emotions has several positive impacts in the class. This affects positively their **academic achievement** allowing to focus on performing during tests and exams, as well as it creates a more **positive classroom climate** and increases students' problem-solving capabilities (Aritzeta et al., 2016).



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Emotions in the classroom

Educators

Not only students but trainers as well should take into consideration their emotional state.

According to the **Good Practice Guide on Training Methodologies** of the **European Union Agency for Network and Information Security (ENISA)**, a physical and emotional state of excellence is essential for effective trainers.

It is suggested, to achieve this state while giving lecture/performing, to:

- Stand up straight and relaxed
- Breathe relaxed using also the belly area (essential for feeling good and confident)
- Be relaxed yet attentive to your audience
- Be confident about your preparation
- Trust in your training to be a success and your students to learn



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Some insights for educators

- 1. Assessment of students' emotions**
E.g. anonymous self-report sheets
- 2. Class culture** that promotes the coping with unpleasant emotions
- 3.** Promote students' **enjoyment of learning** and of the learning material
- 4.** Promote **self-confidence**
- 5.** Grade the understanding of the learning material and **cooperative tasks**, rather than peer-to-peer competition
- 6. Learning assessment** should be more frequent and less challenging
- 7. Involving parents** in supporting students' emotional development
- 8. Help students regulate their emotions:** informing about strategies to regulate emotions, teach Emotional Intelligence and/or use Social-emotional learning (SEL) programmes



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Emotional approach in education for SEN students

Emotional intelligence

There is the need for a **comprehensive strategy** for specific learning disabilities and emotional problems of SEN children.

Most of the children with learning disabilities experience **low emotional intelligence**, as they struggle to cope with anxiety, fear, shame, anger, and incapacity to express feelings and calm themselves.

- Social and emotional competences of children with SEN were significant predictors of their academic performance (Yang, Sin and Lui, 2015).
- The development of social and emotional competences often uniquely **predicts academic success** (Denham, 2006).

Emotional intelligence can help children with special educational needs to be emotionally aware, and to develop effective inter and intrapersonal skills.



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Emotional approach in education for SEN students

Multiple intelligence

Research demonstrated that these students have a propensity on learning that happens in areas outside the traditional verbal/linguistic or logical mathematical spheres.

- Individuals with **autism** showed lower performance of linguistic with materials, whereas they performed equivalently to or outperformed with **visuo-spatial materials** (Takahashi, Kawachi, & Gyoba, 2012).
- Children with **dyslexia** generally show difficulty in discriminating sounds in language and combining letters to form words. In contrast, for **listening comprehension**, they perform as well as typically developing children (Torgesen, 1988).

Adopting MI in teaching **can reduce students' anxiety** by crafting the learning and evaluation methodology according to their dominant kind of intelligence.

In this way SEN students get **an opportunity to experience success in school**. They are able to display their strengths and interests.



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Best practices and past projects in the EU

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Emotional Intelligence, educational tool for developing key competences
Exchange good practices, tools and methodologies on the topic of Emotional Intelligence.



Mastering soft skills and growing emotional intelligence using mindfulness
Develop education staff competences for positive communication, by understanding other people's emotions and needs.
The goal is to improve the quality of education, and encourage students to enhance their soft skills



Improvement of social emotional skills for new students' successful adaptation
Develop a practical tool to identify the EQ of new students in 1st Gymnasium classes and track their EQ change and learning progress.
Improve students' and teachers' emotional literacy.



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Take-home messages

- Students experience emotions that can influence their learning experience
- **Emotions** are relevant in learning, as are with **cognition** supported by interdependent neural processes. Nevertheless the impact of different kinds of emotions remain unclear.
- Emotions develop with maturity and experience, and self-regulation is a key skill for students.
- Educators are demanded to teach **Emotional Intelligence** to their students (with a special focus at SEN), and **design** the learning methodology and assessment in a more effective way (with the Multiple Intelligence theory)
- We should take into account also the emotional relationships of students with academic performances, peers, teachers and parents.

**What does Emotion have to do with Learning?
Everything!**



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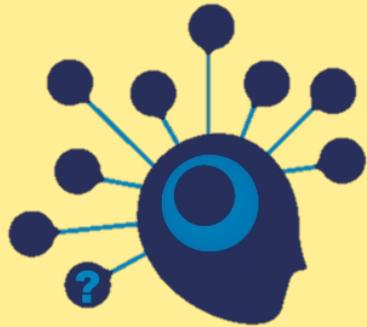
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THANK YOU!

Do you have any
questions?

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