

**Cognitive Neuroscience and  
Emotional Education  
Workshop BSAOL**

**“Basic Sciences All Over Life”**

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## **Cognitive Neuroscience and Emotional Education**

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## **Cognitive Neuroscience and Emotional Education**

### **1. Introduction**

*Without emotional control or regulation, we cannot learn.*

Emotional regulation involves knowing behaviours, thoughts, feelings and physiology that connect each emotion (each emotion has an effect at different levels). What thought is associated with the emotion of fear, for instance? (cognitive); How does the body respond? (physiological); How do people react or behave? (behavioural).

For instance, face with a situation or stimulus that produces fear, our brain is evolutionarily programmed to react and survive, reacting instinctively and automatically through the perception and activation of the SNA and endocrine system, there are three possible ways to defend ourselves, paralysis, avoidance (running away), or fighting (aggressively).

When we are in this situation, the brain that is acting is the so-called reptilian, animal brain.

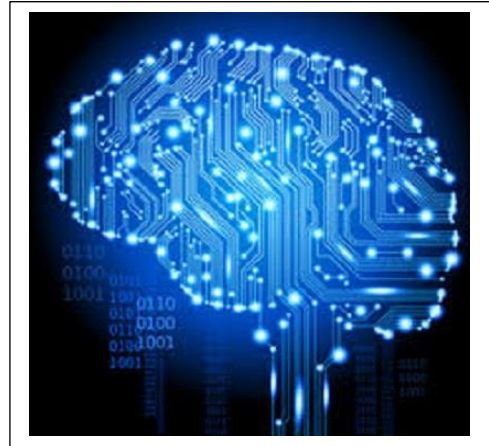
Finally, we come to the relationship of Neuroscience with Learning, and the concept of Emotional Education (SEL). If we do not educate our emotions, we will only be educating a part of our intelligence.

Emotional education is the complement to cognitive development - an essential element of people's integral development. Development of knowledge and emotion skills with the aim of enabling people to better face the challenges of everyday life.



## 2. Cognitive Neuroscience

From 1960 the cognitive approach in Psychology assumes that our thought processes affect the way in which we behave, is inspired by the computer metaphor, the similarity of information processing between a computer and the human brain.



Throughout the ages, there was no talk of our emotional intelligence, because we had no knowledge that allowed us to know that the brain is also the organ of our emotions.

Cognitive Neuroscience has developed greatly since 2000 with scientific-technological advances, such as electroencephalograms, Positron Emission Tomography (PET), Cerebral Computer Tomography (CCT), Functional Magnetic Resonance Image <sup>1</sup> (fMRI), as well as cortisone metabolic tests. These techniques have allowed us to finally see, in addition to the morphological structures of the brain, our intellectual and emotional functions in real time, how our brain records activations in different cognitive processes after receiving stimuli that produce emotions.

Cognitive neuroscience, is the science that links the neural mechanisms involved in psychological processes that characterize human cognition, broadly speaking, encompassing not only strictly cognitive processes, such as sensation, perception, attention, memory, language, thinking, reasoning, but also, *motivational and emotional processes*. To understand the processes involved it is essential to know the relationship between the central nervous system (CNS) and the autonomic system (ANS) – Sympathetic and Parasympathetic.

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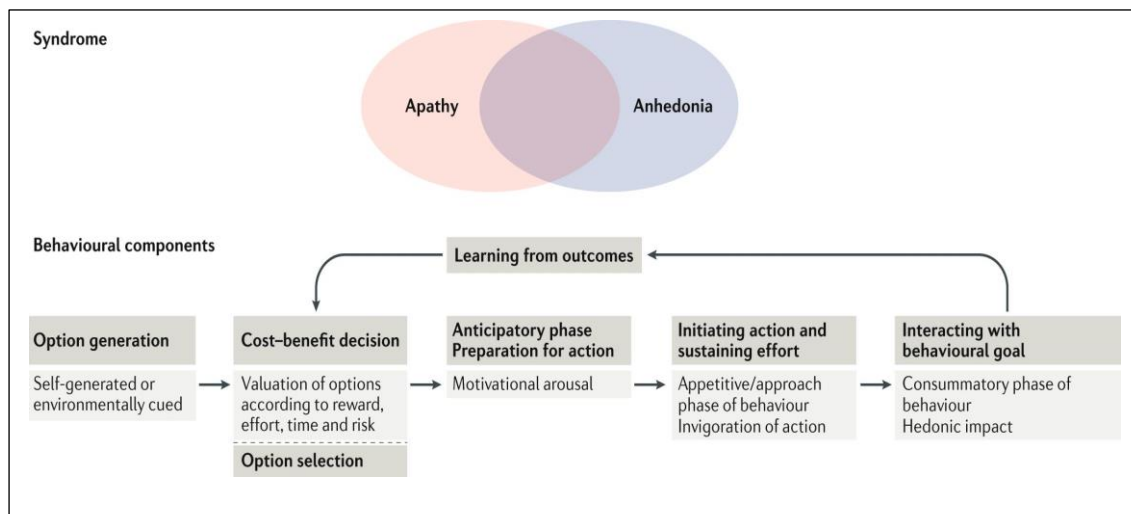
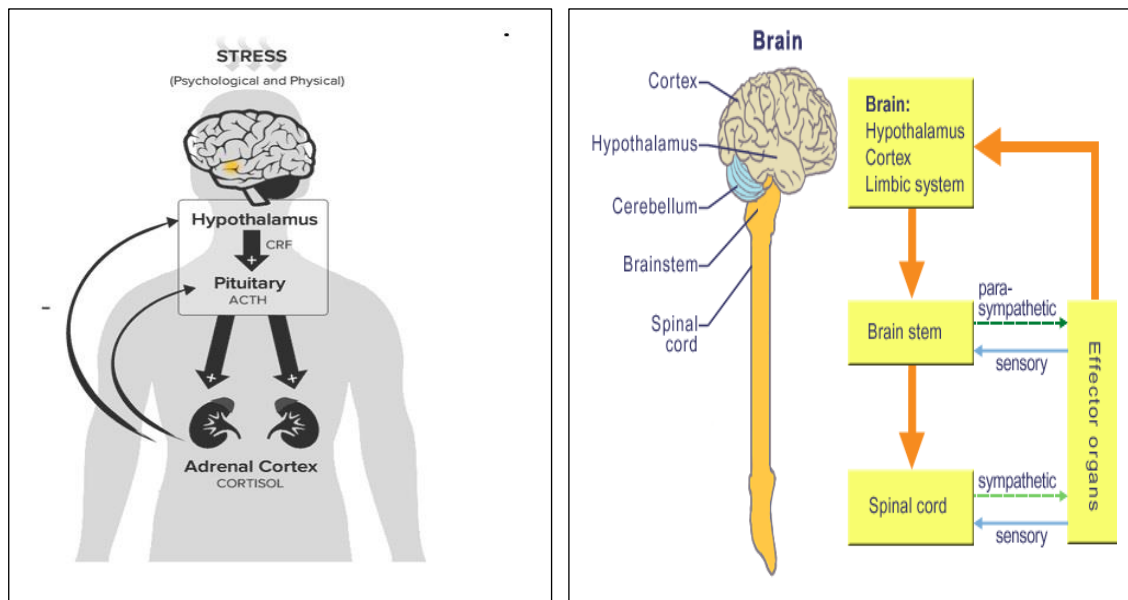
<sup>1</sup> Measures brain activity by detecting changes associated with blood flow. This technique relies on the fact that cerebral blood flow and neuronal activation are coupled. When an area of the brain is in use, blood flow to that region also increases.



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According to Paul McLean and his theory of the Triune brain, we have three brains, which overlap like layers of an onion, one on top of the other and are the outcome of phylogenetic evolution. The deepest is the so-called *reptilian brain*, seat of the most basic instincts, linked to survival, attacks, flees, reproduction, ...everything automatically. Then there is the *mammalian brain*, located in the **Limbic System** and has to do with emotions, is connected through neuronal afferences with the *Neocortex* (higher functions, exclusive of the evolution of human beings) and involving the neural and endocrine axes (SNC and SNA), through the hypothalamic-pituitary-adrenal axis.

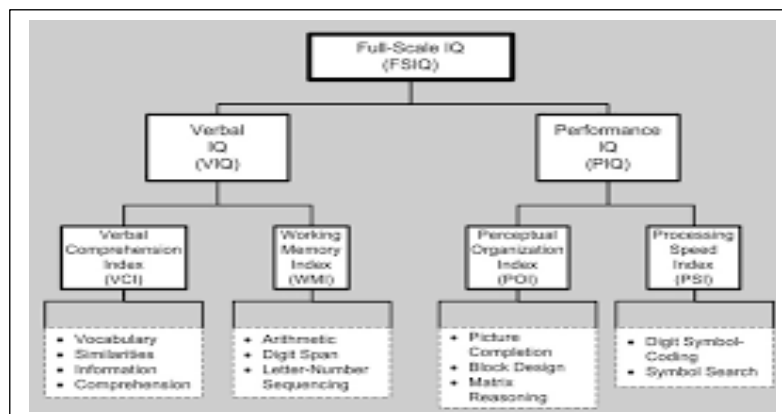




### **3. What is Intelligence?**

At the beginning of the 20th century, within the prevailing perspective of the time, intelligence was investigated along with the possibility of measuring it, taking into account purely cognitive aspects.

The first measure of cognitive capacity was the famous Stanford-Binet scale, in which the cognitive capacity of people is exclusively analysed, cataloguing them on an intelligence scale, in order to diagnose deficiencies in intellectual development. The five factors tested are knowledge, quantitative reasoning, visual-spatial processing, working memory and fluid reasoning. This test measures the Intellectual Coefficient (IQ), classifying people according to scale. However, the Weschler Scale of intelligence, which also measures intellectual or cognitive capacity after analysing the following factors, Verbal Comprehension, Perceptive Reasoning, Working Memory and Processing Speed, is the most used to this day.



However, other researchers disagree with these measures, criticising their reliability and furthermore their predictive power for the life and success of people.

Howard Gardner (Harvard University 1983) defines the model of Multiple Intelligences. For Gardner the development of different types of intelligence depends on three factors: Biological Factor, personal life factor and Cultural and historical factors. His model analyses the visual-spatial, linguistic, logical-mathematical, naturalist-scientific, musical, body-kinaesthetic, intrapersonal and interpersonal or social (emotional intelligence) capacity. This author believes that just as there are many types of problems to solve, there are also many types of intelligences. He decided

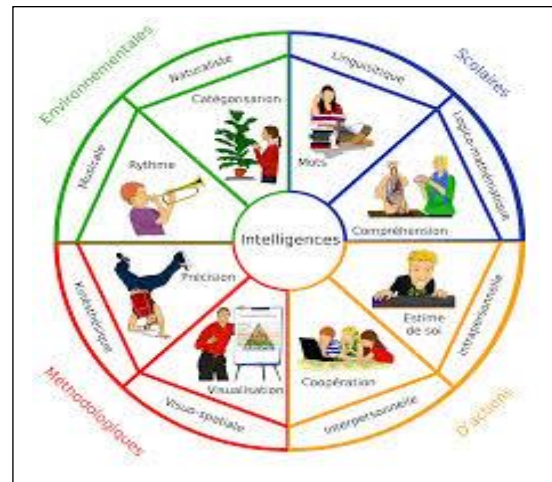


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to write about "Multiple Intelligences" to highlight the unknown number of human capacities and "intelligences" to emphasize that these capacities are as fundamental as those traditionally detected by the Intellectual Quotient (IQ).

Gardner mentions that human beings possess a range of capabilities and potentials, *multiple intelligences* that can be employed in many productive ways, both together and separately. Knowledge of multiple intelligences offers the possibility of deploying with maximum flexibility and efficiency solutions to the problems that exist within society.

Eysenck also elaborates a theory of intelligence, based on Spearman's factors G and F, and Cattell's Fluid and Crystallized intelligence, spreading the idea of three types of intelligence: Biological-genetic, Psychometric (social, cultural and educational factors) and Social (personality, motivation, experience, coping strategies, ...etc.).



Faced with the complexity of being able to simplify and define the term Intelligence, we reach the 21st century, where predictions about professional success and the integral development of people consider two types of intelligence, cognitive and emotional. Both are indisputably related, as currently demonstrated by Cognitive Neuroscience.

### 4.- Emotional Intelligence

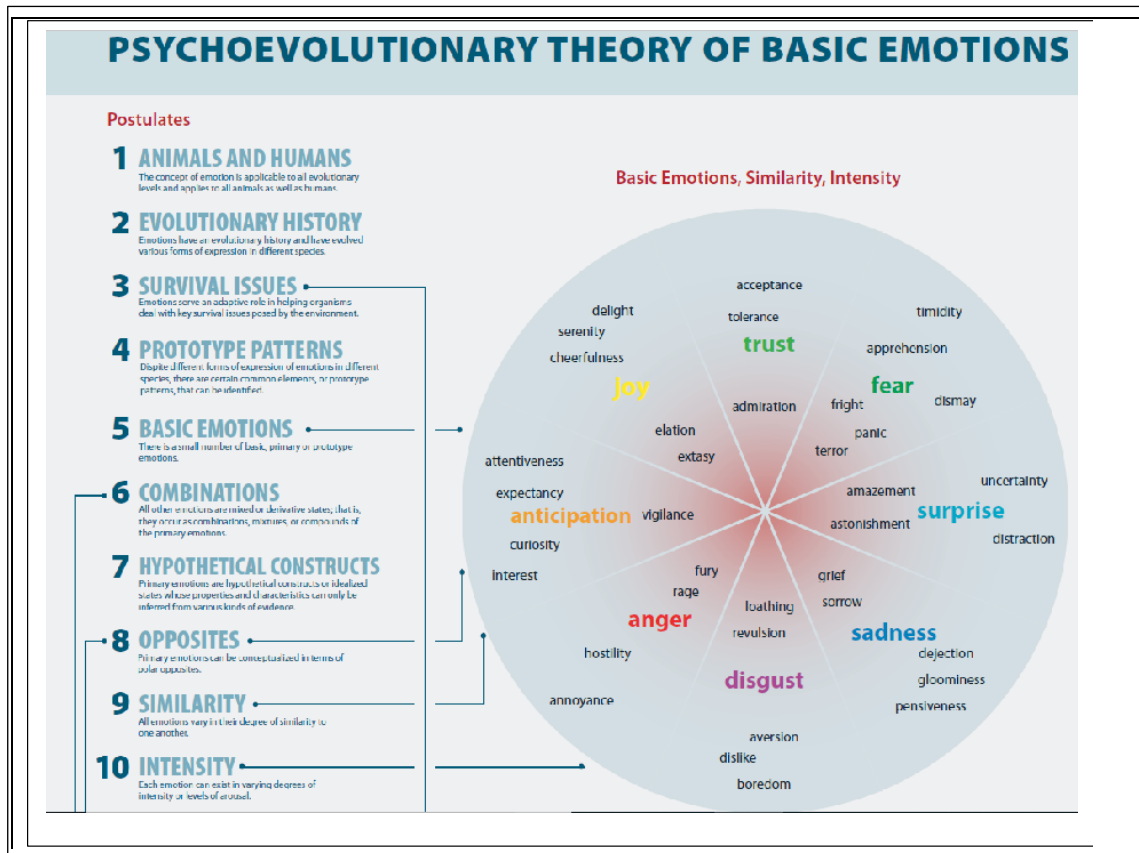
Two united words of how our brain works. Reason and emotion are not opposed, as so much has been said, but are linked, connected.

It is important to recognize our emotions as well as the emotions of others, in order to know how to regulate them.

We must train it through emotional education, just as we train our body.

With emotions we communicate, we reach goals, we live together, we create, we think and we make decisions.

Every emotion is linked to psychological, physiological and behavioural attachments.



**LESSON 3 – November, 27<sup>th</sup> - 2019**

## 5.- Social Emotional Learning (SEL)

“The child who is not emotionally regulated, cannot explore, cannot learn”

Purpose of SEL: the integral development of the person in his/her social context, in school. SEL is applicable to the entire educational community, teacher learning, students and families.

Theoretical bases of Learning: security, confidence and autonomy.

- **SECURITY:** Support. Authenticity. To be present when students need it. To be attentive to the emotional expressions of the students, because most of the time they do not express it directly with oral language.





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- **CONFIDENCE:** getting rapport - teachers are a figure of security and trust, so that students can express what they feel. The first step is to build a bond for meaningful learning to take place. Building a secure foundation in the classroom.

Emotional education can be placed within Emotional Intelligence (positive and humanistic psychology).

### Competences of Emotional Education:

- Emotional awareness: ability to become aware of one's own emotions and those of others.
- Emotional regulation: handling emotions appropriately.
- Emotional autonomy: feeling, thinking for oneself and making decisions.
- Social competence: ability to maintain appropriate relationships.
- Competence for life and well-being: ability to adapt appropriate and responsible behaviors to meet the challenges of everyday life.

## **6.- Attention and Motivation**

### **The digital age, multitasking and hyperstimulation: Learning in our today's culture**

Multitasking: doing or being in several things at once. Digital natives program their brains to do several tasks at the same time, but this overexposure to data, without experiences, without processing, and without internalizing them does not easily allow the learning of ideas.

Video games are designed to receive a multitude of stimuli at the same time, with a very fast reaction speed. When the brain "gets used to" receiving and responding to so many stimuli and motivation (colors, music, loud sounds, bright images, permanent and immediate changes...) the person gets bored by having to focus on a single focus of attention, such as a book, a movie, or a teacher's explanation in a class. It's boring to talk to only one person, when you can have a chat with 7 at a time. It is exhausting all that requires effort, time, perseverance and patience, because in the digital world, the awards (reinforcers) are instantaneous. As in any other addiction, here comes into play the phenomenon of *Tolerance* (resistance for an active substance), the brain, increasingly asks for more stimuli in



order not to get bored. Childhood and adolescence need to be bored quiet, to become active and to be able to create and invent.

On the other hand, everybody deals with problems, so our brain is programmed to search for problems, it is never inactive so we cannot avoid doing this. Even if we need to rest, exhausted, we try to sleep, but our brain is still active attending to that problem that invades us again and again. The brain is never still and has a predilection for problems.

*In the face of invasive thoughts, with feelings of anger, for example, the brain cannot think, learn, or attend.*

Therefore it is necessary to make an effort to disconnect at a given time and be able to rest, only then will be giving peace to our brain and body to see everything clearly.

**Mindfulness** helps us to improve attention and concentration.

Mindfulness we will be able to concentrate our thoughts on what we want, assuring a control on our behalf.

Our mind moves, wanders, until it comes up with a conflict to be resolved or a problem to be anticipated (anxiety).

*Default network:* We are taught by neurosciences that when we are not focusing attention selectively on one point, the mind wanders; in technical terms we know that a *default network* is activated.

*Executive network:* The opposite happens when we are concentrated in a specific activity, there another network takes command, called *executive network*, voluntary attention.

With effort, our thinking is oriented according to our will, focusing on something in particular, reasoning and planning to finally act and execute.

When we are not activating the *executive network*, by default, this place is occupied by the other network in charge of wandering, the brain wanders (some attentional network has to be in charge), and sometimes we live it in a peaceful way, but on other occasions it makes a lot of noise and annoys. And another inconvenience happens when we choose a focus to attend, but we do not reach to concentrate, let's not forget that our brain has a predilection for problems. The contents of the *default network* interfere in the way and push our focus, until it overcomes.



This is where meditation and mindfulness come into the game, when we are attentive and concentrated on one thing, connected to something and deeply involved in that experience, we are in meditation. To be attentive to a focus that we choose and not wandering by the default network.

Practicing mindfulness means achieving a voluntary mental disposition in which we are regulating and controlling our thoughts, our mind, and not the other way around.

The practice of mindfulness exercises helps us concentrate and focus our thoughts in the present moment. (*Annex 1*)

## **LESSON 4 – November, 27<sup>th</sup> - 2019**

### **6.1.- THE ATTENTION PROCESS: "UPTIME PHASE AND DOWNTIME PHASE"**

**Attention** is the one that regulates how to bring something into focus, being a fundamental cognitive process for learning.

*The non-voluntary or free-floating attention* is the one that is always alert to the stimuli that surround us, smells, feels, sees, listens, ...like an alert predator.

*Voluntary or selective attention*, however, requires effort, action, that which is set in motion to read a text or listen to someone and interpret a message, and implies the will, interest and strength that we put into focusing on that point, and understanding a message.

With regard to voluntary attention, we can set two different periods: the uptime phase and the downtime phase. In the first phase, *uptime phase*, the brain is prepared and in an ideal state to attend, open to perceive, with different senses alert, with an open global vision and less dialogue and internal noise. On the other hand, when we are in the *downtime phase*, a propitious state is generated to reflect, accommodate, organize, internalize, get inside the mind to establish relationships and associations, to visualize the content that is being worked on and to generate a greater internal dialogue. Therefore, we cannot pretend with the magistral lessons a sustained attention during hours. Focusing attention when it is sustained over time requires great effort and in our brain the functioning of Neurotransmitters.



For this reason, it is necessary to alternate periods of selective focusing with others of reflection, play, contact with experiences, movement, rest or active pause. It is our responsibility to plan some breaks, to "recharge batteries". Uptime and downtime are two different levels that require a certain amount of time, depending on the age and variable for each person: at 3-5 years of age, the uptime period can be maintained for 5 to 8 minutes, progressively increasing to 15 to 20 minutes by 18 years of age. Therefore, it is highly recommended that you consider planning downtime for at least every 15 minutes, to process and then on again.

**Practice: How do we plan our classroom sessions with the students?**

## **6.2.- THE MOTIVATION PROCESS: Mechanisms of motivation – Our Reward System**

The mind is never still, never calm, always looking for something. It moves intentionally and always seeks to satisfy a need (feeling of lack of something, linked to the desire to make it vanish), this triggers an instability, then comes the time to seek, to restore balance and drives movement or motivation.

Our **needs**, the **lack** of something produces a feeling of displeasure that activates exploration and search, movement that will be upheld until the missing part is detected. When this is achieved, a pleasant sensation emerges which is called reward.

In our brain there is the so-called "*Reward System*", with two phases, an *appetitive phase*, in which there is the search and the approach to the desired element, and the *consummatory phase*, in which we interact with what we were looking for.

The first stage, the *appetitive phase*, is triggered by both external stimuli and internal disturbances, generating a state of excitation (arousal), known as motivation.

There are multiple internal and external factors different to each person, such as the characteristics of the stimulus itself, easy or difficult to achieve, greater or lesser emergency (emotional vs. rational), values, experiences, resistance to frustration, impulsiveness...etc.



The second stage is the *consummatory phase*, the one in which the encounter with the desired resource takes place, the need is cancelled and the appetite is satisfied, enjoyment appears. The relief of the tension previously generated is a satisfaction, a reward. Everything will be stored in memory, to take advantage of experience and optimize resources in a similar situation that may occur in the future, facilitating the fast filling of the need.

The reward system is dominated by the action of a neurotransmitter: dopamine.

Among its actions are the accurate adjustment of cognitive function and the regulation of motivation and compensation. In the first stage, the dopaminergic neurons of the ventral tegmental area (located in the cerebral trunk) are stimulated and start releasing courses of electric action potentials that activate the appetitive phase. The neurobiological routes of this system show mutual neuronal connections with emotional and cognitive areas, so that the stimulation that triggers the search entails not only the anticipation of a desire, closer to the emotional of the limbic, but also the possibility of satisfaction of valences linked to the rational, elements typical of the emerging prefrontal scale of human evolution: success and power.

Other Neurotransmitters are also involved, such as adrenaline, which sets the body and mind in movement.

In the consummated phase there is an important release of dopamine, associated with pleasure, as well as a flush of serotonin turns the sensation, little by little, into a quieter, serene mood.

In addition, in the mesolimbic reward system, signals of information processing are produced through the hippocampus, linked to the function of memory, consolidating in this process, a learning. To motivate means to generate mystery, curiosity, stress, unbalanced, gaps in knowledge and doubt that trigger this reward system. Solving a differential equation is not a primary or emergency need, however, this circuit can be activated when seeking to learn how a function relates to its derivatives.



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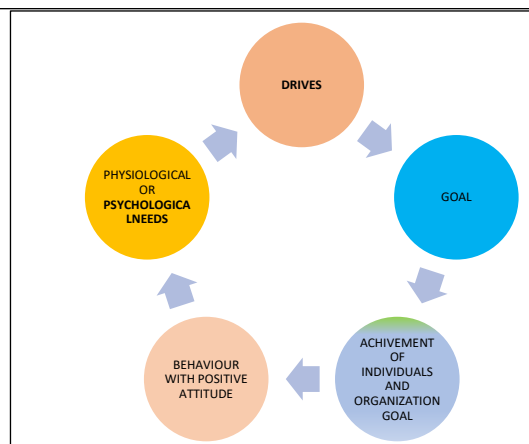
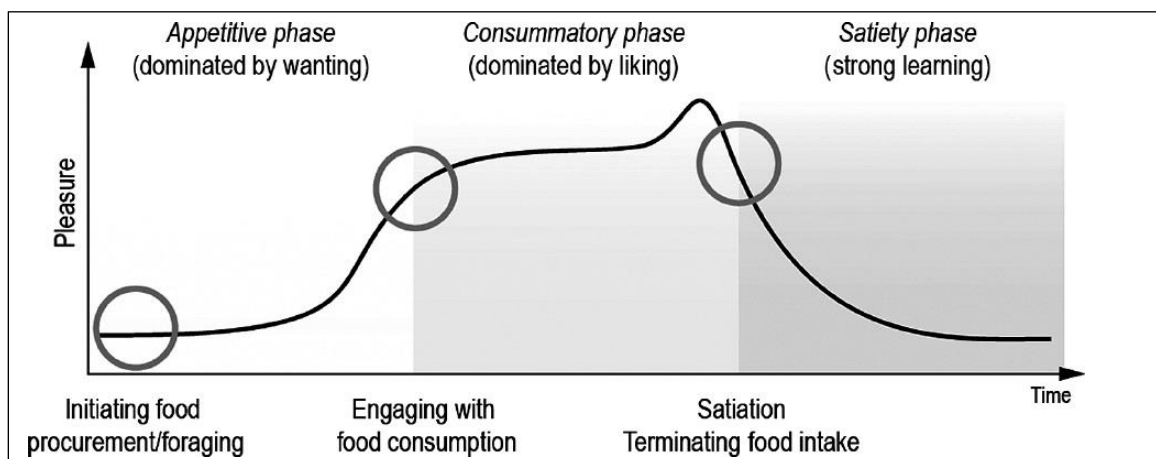
To propose challenges is not a simple task, we must take into account the individual differences, each student has a different brain, a particular style, a singular story,..., some attend better to visual stimuli, others to acoustics, kinesthesia (body language),...etc. Each person has a style of motivation, towards achieving or avoiding failure, internal or external motivation, external or internal attributions to their successes or failures, level of internal activation...etc.

The challenge we suggest must finally be adapted, because a challenge that is too simple can be boring and one that is too huge can lead to frustration and both to abandonment.

The first step is to show lack, then realize that we learn something, and then train in what we have learned (effort and involvement).

More questions and fewer answers. The Uncertainty, discomfort, this is our function as teachers, to generate uncertainty, questions that open a gap of knowledge, a void that, now, wants to be filled.

From the world of the senses and experience one passes to the world of images, of symbols and ideas, it is the phylogenetic and ontogenic development of the human being, that is to mature, evolve.





## **ANNEX 1**

### **Techniques for improving attention and concentration: Mindfulness**

*"Mindfulness means paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally." – Jon Kabat-Zinn (1994)*

Mindfulness education is exactly what it sounds like: the purposeful inclusion of mindfulness and **mindful meditation** principles, theories, and practices into education.

The goals of mindfulness education are to help students learn:

- **Self-awareness**
- **Empathy**
- Techniques to calm and focus the mind
- Mindful communication
- Applying mindfulness skills to everyday life

Further, a review by Erica Baxter found that mindfulness has proven to help children and adolescents with:

- **Reducing their anxiety.**
- Helping them reduce and/or manage their stress.
- Improving their attention and ability to focus.
- Managing their emotion reactivity.
- Increasing their self-awareness and **self-regulation.**
- Helping them find peace.
- Encouraging their ability to calm themselves and regulate their emotions.
- Improving their executive function and higher-order abilities (i.e., planning, strategic thinking).
- Decreasing their test anxiety through enhancing memory and concentration, and reducing mind-wandering/daydreaming.
- Mitigating or reducing ADHD symptoms.



### **A Mindful Break**

This clever exercise comes from a middle school teacher at the 2015 Education Minnesota conference and can be a fun and engaging way for older students to practice mindfulness (and get a sense of autonomy and responsibility to boot!).

This is how to do it:

1. At the beginning of each class, assign a bell to one student. Pick a different student each class. During that day's lesson, the student is instructed to ring the bell when he or she feels the class needed a break (you may want to set some limits here, such as no more than two breaks during a 50-minute class).
2. When the student rings the bell, even if the teacher is mid-sentence, the class will stop. In silence, everyone will stand up and stretch, and then sit down for 30 seconds or so of mindful breathing. Then, the student who rang the bell will prompt students to silently think of something they are grateful for.
3. After this brief interruption (it should only take a minute or two), the class will resume where it stopped.
4. This is a quick practice that gives both students and teachers a well-deserved and often much-needed break. Giving students ownership over the break and mindfulness exercise enhances their engagement in the practice, and it can also give the teacher valuable information about when students' attention is waning.

### **Check in With Your Attention**

If giving a student free reign with a bell doesn't sound like it will work in your classroom, try the attention check exercise instead.

In this exercise, you (the teacher) will keep control of the schedule and you can introduce it when you see fit. You can have students practice this exercise at any point in the class, even during the middle of a lesson if you think students really need it.

To implement it, all you need to do is stop whatever the class is doing and tell the students to hit pause and check in with their attention. Ask them:

- Is your attention here, in class?
- Was your mind wandering?
- If so, where did your attention go?

At this point, you should be sure to tell them that a little mind-wandering is totally normal and healthy, but emphasize that they ultimately have control over their mind; they can catch their wandering brain in the act and gently guide it back to the present if they so desire!





Encourage them to take a moment to notice what their mind is doing and remind them that they have a choice about where to direct their attention.

### **End with a Mindful Moment**

To bookend your mindfulness lesson (or your class in general), try this exercise. It's a good way to give "closure" to the lesson in a way that is likely more mindful, calm, and peaceful way than usual!

Here's what you do:

1. At the end of class, give students around 3 to 5 minutes to focus on their breathing. Instruct them to close their eyes if that feels comfortable, and simply focus on their breath—coming in, and going out.
2. Tell the students to think about what they have learned and accomplished in class today.
3. Give them a few quiet minutes to settle and bring themselves back into balance.
4. End with a positive statement; this can be about how much you care about them, how much you believe in them, or how hard they worked today.

This simple activity can act as an excellent closing activity for your lesson.

### **Conscious breathing.**

- Students can stand or sit for this activity.
- Students put both hands on their belly.
- Students should close their eyes, or look down to their hands.
- Guide students in taking three slow deep breaths in and out to see if they can feel their hands being moved.
- You may like to count "1, 2, 3" for each breath in and "1, 2, 3" for each breath out, pausing slightly at the end of each exhale.

Encourage students to think about how the breath feels, answering the following questions silently, in their mind.

What is moving your hands? Is it the air filling your lungs?

Can you feel the air moving in through your nose?

Can you feel it moving out through your nose?

Does the air feel a little colder on the way in and warmer on the way out?

Can you hear your breath?

What does it sound like?



### **Body Scan.**

- Students lay on the floor, or sit with their eyes closed if they are comfortable (or they may prefer to look at the ceiling).
- Encourage students to pay attention to their feet for 5 or 10 seconds.

Questions to ask during a body scan:

- *How does this body part feel?*
- *Is it cold or warm?*
- *Does it feel tight or relaxed?*
- *Is all or part of that body part touching the floor?*
- *Or clothing?*
- *What does that feel like?*
- *Move on to their toes, then ankles, then calves and knees. Continue body part by body part until you reach the head.*
- Question how each part of the body feels to bring students' awareness to their body in the moment.
- *If there is tightness or stress, imagine breathing the stress out of that part of the body with each exhale.*

### **Mindful Steps exercise:**

- This activity is best completed outdoors and if suitable, students may like to walk barefoot.
- Give students a clear boundary for where they can walk during this activity.
- Each student selects a small area where they can walk in a line for about 5 or 6 steps and back then back to where they started without getting into another person's way.
- Begin this practice with three deep breaths, or the Shark Fin activity (#4 above).
- Take 5 or 6 steps in one direction, turn slowly and then take 5 or 6 steps back to where you started.
- While walking, students bring their awareness to their breath and their body.
- What does the ground feel like under your feet?
- Which part of your foot touches the ground first when you take a step?
- Does your body feel heavy or light today?
- Are you slouching when you walk?
- Or, is your back up quite straight?
- Try not to change the way you walk, but instead just notice how your body naturally moves.



### **Conscious listening.**

The Bell Listening Exercise:

- Ring a bell and ask the students to listen closely to the vibration of the ringing sound.
- Tell them to remain silent and raise their hands when they no longer hear the sound of the bell.
- Then tell them to remain silent for one minute and pay close attention to the other sounds they hear once the ringing has stopped.
- After, go around in a circle and ask the students to tell you every sound they noticed during that minute. This exercise is not only fun and gets the students excited about sharing their experiences with others, but really helps them connect to the present moment and the sensitivity of their perceptions.

If none of these catch your attention, perhaps you would like students to find the rhythm of their Heartbeat:

- You might like to begin this practice with three deep breaths.
- Students place their fingers or hands over the part of their body where they can best feel their pulse:
- On the side of their neck, under their jaw, inside their wrist, or over their heart.
- Ask students to close their eyes and notice how quickly or slowly their heart is beating.
- Encourage them to think about their current state of emotion and consider if this might be connected to how quickly or slowly their heart is beating.
- Direct students to stand and jump up and down on the spot ten times.
- Students return to sitting and feel their heartbeat again, noticing any changes.
- Students may like to close their eyes and focus on their heartbeat until it slows back down.

### **Attention on an object.**

Another sense-focused exercise is called The Art of Touch:

- Give each child an object to touch, such as a ball, a feather, a soft toy, a stone, etc.
- Ask them to close their eyes and describe what the object feels like to a partner.
- Then, have the partners trade places. Both this exercise and the previous one are simple, but compelling, ways to teach the kids the practice of isolating their senses from one another, and tuning into distinct experiences.

Follow Young's instructions to create a mindful jar:

- Start with a jar and fill it almost to the top with water. Into the water, add a few big dollops of glitter glue (or school glue and dry glitter). Pop on the lid and give the jar a shake.



- Here are some words:
- *'Imagine that the glitter is like your thoughts when you're stressed, mad or upset. See how they whirl around and make it really hard to see clearly? That's why it's so easy to make silly decisions when you're upset – because you're not thinking clearly. Don't worry this is normal and it happens in all of us (yep, grownups too).*
- [Now put the jar down in front of them.]
- *Now watch what happens when you're still for a couple of moments. Keep watching. See how the glitter starts to settle and the water clears? Your mind works the same way. When you're calm for a little while, your thoughts start to settle and you start to see things much clearer.'*
- The beautiful part of this exercise is that while they are learning about their emotional selves, they are also engaging in an act of mindfulness as they watch the glitter fall to the bottom of the jar.

### **The Mindful Snack**

- If it's around snack time, you might find this activity from Young (2015) to be even more engaging.
- Here's how you do it.
- Next time you have a bite to eat together, try **mindful eating** for a few minutes.
- Use a script like this to guide your children through the exercise:
- *'Let's try something called mindful eating. It's where you slow things down when you eat so you can notice things you don't usually notice. What does your food feel like to touch? What about the smell? What if you squish it a little – what does that feel like? Now take a bite but chew very slowly. Really notice your mouth moving up and down. Can you feel the food against your tongue and between your teeth. What does it taste like? What does it feel like? Keep chewing for a little while (20 to 30 seconds). When you're ready, notice what the food feels like as it moves down your throat and towards your belly.'*



## **ANNEX 2**

### **The learning processes**

Learning is a complex and constructive process, it means that, we generate knowledge and meaning from an interaction between our experiences and our ideas.

Knowledge is internalized by learners, through processes of *accommodation* and *assimilation*, individuals construct new knowledge from their experiences<sup>2</sup>.

*Accommodation* is the process of reframing one's mental representation of the external world to fit new experiences.

Individuals *assimilate*, they incorporate the new experience into an already existing framework without changing that framework.

### **Effective learning**

*Meaningful learning* refers to a learning way where the new knowledge to acquire is related to previous knowledge.

### **Learning environment and working methods**

Secondary education focuses especially on the learning of generic skills. Such skills include the ability to work independently, team working skills, ICT skills, information search skills, critical literacy and in particular, the skills of learning to learn. Students must be encouraged to perform self-and peer assessment.

Since learning is tied to the student's previous knowledge and learning strategies, it is always individual. For this reason, learning environments, teaching methods and channels must be used in teaching.

Key skills are related to reading, understanding, interpreting and producing various texts. The working methods used require cooperation among teachers and a shared understanding of the importance of language.

Working methods must be versatile, they must activate students to allow differentiation, for example work in groups, pairs and project work alongside independent work.

The methods used must inspire the students' motivation to learn and take responsibility for their own learning. They must develop the students' learning strategies and ICT skills.

Teaching can be arranged as contact teaching or as a flexible combination of contact teaching and independent work and/or distance teaching. Teaching takes advantages of the various opportunities provided by information and communications technology. As the students' own learning skills and textual skills improve, the share or independent work is increased. Partial co-teaching can be used in the provision of language courses and courses from other subjects' groups, as this contributes to the improvement of students' multiliteracy and language skills. In such cases, it must be ensured that the objectives for

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<sup>2</sup> Jean Piaget



both courses are met and both their contents covered. This can be achieved, for example, through independent work by students, distance learning assignments and project work.

Contact teaching supports peer learning among students, encourages them to support each other and reinforces their sense of belonging in the community of students and the entire general secondary school. It is vital that students in secondary education participate in the school's events and activities. In this way, secondary education becomes a part of the school's operational culture.

The role of the teacher in guiding learning is accentuated. Students are actively involved in course planning, the planning of exams or other demonstration of learning, as well as the assessment process.

### **Learning strategies: methods and technics, tools, resources.**

The aim of teaching should be to help students learn knowledge and strategies to learn.

#### **Learning strategies:**

Use various working approaches and learning strategies effective from the standpoint of language study and learning, and to use them in learning in their native languages.

Make use of information and communications technology in communication and information acquisition.

Carry out small-scale projects independently or in group.

Evaluate their own work and language skills in different areas, in relation to the objectives, and to change their working approaches as needed.

- Social/affective strategies: to build awareness towards the learning tasks and to provide basic conditions and atmosphere to develop meaningful learning. The influence of social and affective processes on learning. Co-operative learning, which involves peer interaction to achieve a common goal in learning, and asking questions for clarification. Cooperative strategies have been shown to enhance learning on a variety of reading comprehension tasks. Working with fellow-students language.

**Emotional Intelligence:** Teachers realise that a happy, well-adjusted child tends to work more productively, both separately and with others. "Well-adjusted" means a child who has self-esteem and strong sense of self to engage with others within the school environment. They recognize that at times their pupils need emotional support that they would try to give but sometimes feel unable to do this satisfactory. Acquiring some counselling skills would help teachers cope with testing situations where they are acting as confidant to a child, to console the child and encourage them to get further help if needed. Teachers would benefit from learning additional skills.

Teachers and counselling skills: They might use Carl Rogers Core Conditions (Empathy – being able to understand their students -;Unconditional positive regard and respect - vicarious learning; Congruence and Genuineness – it would involve engagement with the pupils as individuals - and Acceptance – Students need to feel that they're (most of the time at least) accepted and valued by others and that they have a part to play as individuals).



- Developing your student self-esteem, not being afraid to make mistakes.
- Cognitive strategies are more directly related to individual learning tasks and entail direct manipulation or transformation of the learning materials.
- Metacognitive strategies involve thinking about the learning process, planning for learning, monitoring of comprehension or production while it is taking place, and self-evaluation after learning activity has been completed. Self-management: trying to arrange the appropriate conditions for learning. Self-monitoring, self-evaluation, self-reinforcement.

### **Developing cognitive strategies - Learning to learn – Metacognition.**

Advance organisers: planning the learning activity in advance.

Getting meanings from contexts

Practice and creates opportunities for practice: Using the language socially outside the classroom.

Using the language for work, obtaining information, etc.

Directed attention: deciding to concentrate on general aspects of learning task.

Selective attention: deciding to pay attention to specific parts of the language input or the situation that will help learning.

Cognitive strategies: advance preparation, delayed production, repetition, resourcing (making use of language materials such as dictionaries), translation, grouping, note-taking, deductive reasoning, recombination, imaginary (visualising information for memory storage), auditory representation (keeping a sound or sound sequence in the mind), key word, contextualisation (placing a word or phrase in a meaningful language sequence), elaboration (relating new information to other concepts in memory), transfer (using previous knowledge to help language learning,

guessing/inductive inferencing, guessing meanings by using available information) "I think of the whole meaning of the sentence, and then I can get the meaning of the new word".

### **Communication strategies**

Linguistic reasoning or reasoning based on situational hints, for clarifying the content of a message.

Utilizing feedback obtained in an interactive situation.

Compensating for deficient language skills by approximate expression.

Monitoring one's own language usage.

Realization of language as a system; Realization of language as a means of communication and interaction.



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**Lesson plan structure (Example of an English lesson)**

Warm-up (use warm-up to get the brain thinking in the right direction): It can be as simple as telling a short story or asking students questions.

Presentation (The presentation focuses on the learning objectives for the lesson)

1. Introduction of Topic: – Picture or Photograph - Brainstorming
2. Building vocabulary: Students must look up words (using dictionary, Internet,...).
3. Listening (dialogues, news, texts,...).
4. Reading (adverts, letters, texts...)
5. Grammar
6. Speaking (dialogues, texts, role-playing,...)
7. Writing (texts, letters, forms,...)
8. Feedback- Test – Check your progress. Typical difficulties for learners: comprehension, speaking and writing.

Practice: consolidation exercises, matching, making list, filling in the gaps, labelling, true or false, open questions and guessing exercises...

- Formal and informal texts, letters, descriptions, stories, essays, patterns
- Idiomatic expressions, collocation, verbs patterns, ...etc.

Individual and cooperative learning: teamworks or collaborative works, groups.