

AUGMENTED REALITY: A NEW WAY OF TEACHING AND LEARNING

HOW TO MOTIVATE AND ATTRACT CURRENT STUDENTS

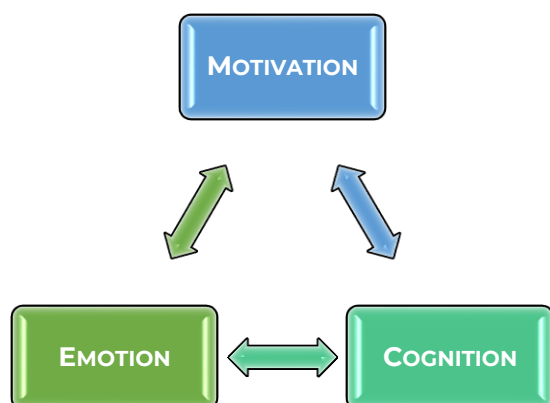
With the evolution of technology and constant changes in society and mentalities, it is essential to develop processes that monitor and adapt teaching and learning methodologies to these changes. Young people have structures of mind and sources of motivation and interest that are different from adults, as technologies come up at fast pace. Not only because they grew up and learned in the latest technological environment, which shapes their mental frames of reference, but also because their life experiences are different from the generations of their parents and grandparents. These experiences make them more open to change in general, unlike a part of the adult population, which is more resistant.

On the basis of these observations, it seems important to look at learning in training, through the use, or otherwise, of Augmented Reality (AR), adapted to current contexts and to trainees, young or adult, adept or resistant to change and new technologies. This is where the themes of emotions and the use of Emotional Intelligence (EI) in the trainer and trainee come in.

Without Emotion there is no Learning

The Emotions encompass, simultaneously, positive and negative, conscious and unconscious behavioural aspects, whose importance in social relationships and learning is fundamental.

Our emotions and experiences are aggregated in our learning because the amygdala (responsible for processing emotions) acts actively in our memory, cognition, attention and reasoning. Our emotions are an essential source of learning because they positively or negatively affect our cognitive functions.



Emotions emerge from survival mechanisms and support cognitions of information, processing and planning, and the execution of adaptive responses.

Thus, balanced emotions provide beneficial and pleasurable learning, fundamental for intellectual and cognitive development. The greater the interest and motivation for a subject, the greater the absorption and ease of this knowledge. Unbalanced emotions generate negative responses, can increase discomfort, fear, insecurity and emotional problems, such as anxiety, cause temporary failures in attention and concentration and prevent the retention and development of new learning.

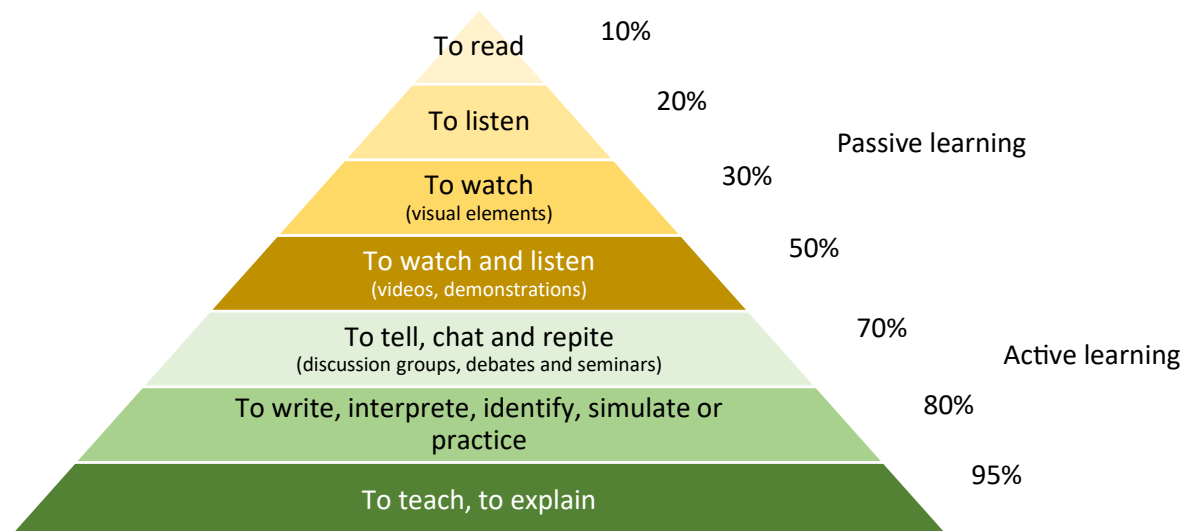
Motivation in the Training/Education of the Future

Against this background, we believe that training/education should be a space of relationship between the cognitive, the emotional, and the social, designed to extract relatable examples from the real world in order to attribute a relevant, social, relational and motivational value to them.

This is because trainees become more involved when they understand what they are supposed to learn and when they find the information meaningful and relevant to their daily lives. What's more, the more quickly a training need is met, the greater the likelihood of remembering and retaining what has been learned.

The trainer, as regulator, moderator and facilitator, must therefore promote a growth mindset, where failure is learning, where challenges and achievements, however small, are major steps towards the integration of knowledge.

If we recall William Grasser's learning funnel, we can see that with augmented reality (AR) and virtual reality (VR), we learn around 80% of what we are taught.



AR and VR offer a number of advantages for training, including:

- Development of technical skills,
- Better training for stressful situations, which require quick intervention in crisis situations, rationalisation and awareness of the best decisions,
- Improvement of the decision-making ability,
- Increase self-confidence,
- Motivation and creation of an affective relationship,
- Improvement of the time management, during and after training, and stress and anxiety management,
- Greater security and lower cost by reducing errors and controlled environment,

However, these tools also have limitations which will depend on the trainees' involvement, their cognitive development and the impact of the realism they provide, and in which they may show

reservations and resistance. Digital illiteracy or resistance to the use of new technologies also limit learning. Nor should we forget that the success of some equipment depends on spatial vision and cognitive skills. Last but not least, the cost of some equipment makes it difficult to mass-market and, consequently, to use in a training context.

We are multimedia beings

According to António Damásio, we are multimedia beings. Our brain, through the senses, creates images of what is outside, and imagines experiences as if they were actually happening. This is what we call Simulation.



We can simulate an experience, tactile, visual, olfactory and auditory sensations, but we cannot simulate internal sensations in the body, as we will feel them in the future. It would be interesting if augmented reality and virtual reality could make a significant contribution in this area.

In conclusion, it is recommended that in future training/education, emphasis is placed on continuous learning sequences and experiences, meta-reflection, group work and evaluation by the trainee and peers. Intense, multi-directional interaction between all participants promotes motivating, continuous and constructive learning, thanks to systematic and timely feedback on teaching tasks and activities. Learning tools and experiences must be adapted to the needs of each individual to create and reinforce intrinsic motivation, linked to interest in learning, content and, simultaneously, professional motivations. This is where the trainer plays a fundamental role, by being sensitive, attentive and able to manage the emotions of all those involved.

If we can achieve learning that creates positive emotional links with trainees' everyday lives, in which new technology is not a "bogeyman" that punishes and blocks, but is seen as something that enriches us, makes us evolve and adapt, makes us create and improve relationships with ourselves, with others and with the world around us, then augmented reality and virtual reality training will make much more sense and have much more importance.