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Mirror neurons: do we need to interact to learn?

The research of Giacomo Rizzolatti on mirror neurons raises the important question: are we "programmed" to learn through human interactions?

Are our brains wired to learn through human interaction?

From our birth we learn through interaction with other human beings. It does not take much time to teach a child to smile, tongue or say hello with his hand. Observing and replicating behaviour is the most basic form of learning and also applies to the way we learn as adults.

Have you ever felt embarrassed for a comedian who is booed during his show? When someone smiles at you, is it natural for you to smile? Have you ever stiffened when you see someone beating his/her foot against a piece of furniture? Probably your comment was a heartfelt "ouch!". You will certainly recognize human empathy in these examples, but perhaps you do not know that all this is possible thanks to mirror neurons.

What are mirror neurons?

Between the '80s and' 90s, the Italian neurophysiologist Giacomo Rizzolatti and his team conducted a series of experiments on monkeys to study the neuronal activity that controls motor movements.
In each experiment, a monkey performed an action (for example, eating) and the team recorded the corresponding neuronal activity. The sensational discovery was that the same neurons that were activated in the monkey that performed the action were also activated in the monkeys that observed their similar protagonist of the experiment.

So we have evolved also thanks to neurons that "feel" as just the behaviour of the person we are facing or simply observing.

In this regard, the neuroscientist Vilayanur Ramachandran theorises that it is thanks to mirror neurons that human beings have made many technological advances in the last 10,000 years:

"*What happened is due to the emergence of a sophisticated mirror neuron system that allowed us to emulate and imitate the actions of other people. When there was a sudden accidental discovery by a member of the group (the use of fire or a particular type of instrument) it spread rapidly, horizontally across the population, or it was transmitted vertically, along the generations. This suddenly yielded Lamarckian rather than Darwinian evolution. Darwinian evolution is slow; it takes hundreds of thousands of years. [For example], for a polar bear, to have evolutionary changes in their fur, it will take thousands of generations, perhaps 100,000 years. [But] a human being who lives in a particularly harsh climate, a child, could simply observe an adult tan a polar bear fur and learn the process in no time. What naturally the polar bear (and nature) takes 100,000 years to learn / modify, a human can learn it in five minutes. And once learned, it spreads quickly in a population. The imitation of complex skills is what we call culture and is the basis of civilization* ".

Mirror neurons are what allows human beings to spread knowledge so quickly and effortlessly. The mirror neuron system gives a new and crucial meaning to the role that human interaction plays in learning.

Mirror neurons in eLearning

Mirror neurons show that the basis of human learning comes from observation, comprehension and imitation. Having clarified the evolutionary role of mirror neurons, the question arises: what role do they play today? After all, the way we learn today is very different from 500, 50 or even 10 years ago.

Online learning is the future of training, but training in a virtual environment does not mean doing it in an environment without human interaction. The process of mirror neurons is equally relevant in an online environment and that is why it is so important to promote human interactions within e-Learning courses.

If we think about it, Internet is designed to connect people to each other and eLearning should be seen in the same light. Online courses should aim to replicate the same human interactions that occur in the presence.
Despite this, many eLearning solutions are currently designed using non-interactive and boring formats. When human interaction is removed from learning, the brain is denied its most basic instinct: to observe and to replicate.

From this point of view, it turns out to be much more effective to inspire the creation of online courses to the activity of mirror neurons. How? Incorporating human interaction! This way you will be able to create a learning environment in which students are able to learn from each other, activating their own neuronal structures that stimulate understanding. Actions such as peer feedback or interactive quizzes will stimulate students to discern the meaning of the courses more efficiently, creating an enhanced learning experience.

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