

## **Artificial Intelligence in Psychology**

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### **Introduction**

According to Dhankar and Walia (2020), Artificial Intelligence is an element of the IT industry, through which a machine is given the opportunity to reproduce the characteristics of man, that is, to think and behave like him. However, empathy and consciousness are elements that are impossible to reproduce by machines.

Artificial Intelligence is made up of some basic elements. Initially, it consists of the human element referring to the connection between man and machine, which perceives a particular type of language, which is difficult for man to understand. The second element is the knowledge base of artificial intelligence, which is based on data analysis, management and comparison of large amounts of information in order to provide the best possible result. Finally, an algorithm is considered necessary for the preparation of data. These algorithms are created by specialized programmers using statistics, probabilities, algebra and other mathematical data (Dhankar & Walia, 2020).

In addition, the operation of the basic elements of artificial intelligence presupposes the existence of a variety of quality elements. In particular, the first of the elements is Learning, which takes place through various methods such as Routine Learning, which is the process of memorizing phrases, words and solutions to problems, and Generalization, which allows the alternation of word times. The next element is the Problem Solving, which consists of the special and general purpose categories. The special purpose category has been created to solve specific problems, while the general purpose is faced with a variety of problems. Then, an additional element is that of Etiology and Logic, where the first concerns the creation of a conclusion, which is relevant to the existing process, and is divided into the inductive and inferential formula. Logic is used to represent information and the problem and consists of three types, propositional logic logic, first-order logic logic, fuzzy logic logic and subjective logic logic. Additional elements of artificial intelligence are Perception, which analyzes objects along with each feature of technical instruments, Language of Understanding, related to specific algorithms that have the ability to read facial movements and reflect the user's mood, and the Neural Network, which is a series of algorithms that recognize the relationship between data. Finally, Machine Learning is an important part of artificial intelligence that focuses on creating applications based on observation, data and instructions given by human intervention, and improves its accuracy without being programmed for it (Dhankaretal., 2020 ).

### **Emotions and Artificial Intelligence**

Emotions are part of human behavior that play a key role in making certain decisions and often influence the person in his performance and in the production of a smart result. But can people's emotions and thoughts be captured by a computer? The article by Martinez-Miranda & Arantza (2005) analyzes the addition of emotions to intelligent technological machines.

To begin with, the emotional region is the base on which the brain developed and is connected to thousands of neural networks. It is noteworthy that for many years there was a belief that emotions are an unwanted product of the human mind, and so the less emotional one was, the smarter and more rational one was considered. However, Damasio suggested that rationality is inextricably linked to emotion (Martinez-Miranda et al., 2005). Going forward, one of the main goals of Artificial Intelligence is to create systems that will perform complex tasks and act like humans. A new approach to Artificial Intelligence is the term emotional computation, which aims to highlight human emotions from a computer. Cathex is a computer model created to generate feelings of affection and mood. A network of interconnected nodes also forms the feeling. The stimuli detected by the sensors can activate the emotions or change their intensity (Martinez-Miranda et al., 2005).

FLAME (Fuzzy Logic Adaptive Model of Emotions) is a customized emotion model that uses vague logic to represent events, goals, and emotions (Martinez-Miranda et al., 2005). Finally, PECS aims to simulate human behavior and is based on the integration of emotions, cognitive and social characteristics (Martinez-Miranda et al., 2005). However, it is a fact that in order for an artificial system to develop the exact relationship between human emotions and behavior requires a lot of work (Martinez-Miranda et al., 2005).

### **Artificial Intelligence in Autism (ASD)**

More and more people today rely on artificial intelligence to solve some of their difficulties which they see as not being successfully dealt with by traditional techniques or there is generally no other way to solve them. These difficulties can concern the health, the psychology but also what concerns us mainly, the autism of the children. In particular, researchers have developed intelligent animal-like robots such as the Paro, which are increasingly being used to serve humans. The Paro, along with the large furry eBear, is part of a class of "companion robots" that attract people as home health care assistants, respond to speech and movement, or help the elderly, isolated and depressed patients through companionship and interaction. Several studies have examined the role of such robots in reducing stress, loneliness and arousal and in improving mood and social connections (Wada, Shibata 2007). This is very helpful for autistic children who face these kinds of weaknesses and deficits. So far, the results are very promising. It has been shown that children react more positively to the thought that they are not cooperating with a human but with a robot and have no problem expressing themselves because they do not have a sense of shame and fear. Finally, those involved in the process seem to comply more easily with the robot than a human. (Calderita LV, Manso LJ, Bustos P, Suárez-Mejías C, Fernández F, Bandera A. 2007)

At the same time, according to research by Fiske, Henningsen and Buyx, there are other types of AI robots that provide opportunities with different forms of involvement in children with Autism Spectrum Disorders (ASD). Like, the Kaspar robot that has shown potential for integration into current education and treatment interventions and is being explored for the possibility of improving social skills among children (Mengoni, Irvine, Thakur, Barton, Dautenhahn, Guldborg 2017). Likewise, RoboTherapy is an example of robotic social assistance designed to help children with ASD develop social skills. The Nao robot is designed to improve facial recognition and proper eye response. The goal of such a robotic interaction is to learn appropriate social skills (eg imitation, staying and empathy), in the hope that children can then apply the skills they have learned with the robot to their relationships with humans.

### **Conclusions**

The initial studies are promising, as people with ASD performed better with their robots than therapists, responded with social attitudes towards robots, and improved spontaneous language during treatment sessions (Tonacci, Tartarisco, Billeci, Ruta, Gangemi 2016). Artificial intelligence robots are also being explored in a variety of other areas of mental health, including mood and anxiety disorders, children with behavioral disorders, and patients who may not have a specific diagnosis but who will benefit from mental health assistance (Rabbitt SM, Kazdin AE, Scassellati B 2015).