Chapter 2

Use of Socio–Cognitive and Affective Computing to Teach Emotions to Autistic Children

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ABSTRACT

Learning aids in the development of attitude. It encourages the individual to learn new skills. It is critical to master three learning domains: cognitive, affective, and psychomotor. The cognitive computing system instantaneously processes data and gives solutions to questions. Affective computing is the development of tools that can recognise, understand, examine, and replicate human brains. Communication and behaviour are impacted by autism spectrum disorder (ASD), a developmental disease. ASD leads to have difficulty in interacting with society and communicating with society. It states that people with ASD have 1) difficulty in conversation and contact with other people, 2) symptoms that interfere with the person's ability to function normally in the society, and 3) restricted interests and repetitive behaviours. In the chapter, a computer-based model is developed for various emotions, facial expressions, and voice and body language. The aim is to develop a computer-based model that supports the autistic children to understand emotions and express their feelings.

In the proposed work, computer based model can be developed for various emotions, facial expressions, voice and body language. The computer based model can be repeatedly used to teach the autistic children which will assist the autistic children in understanding the emotions. The self-learning algorithms, algorithms for pattern recognition can be used to know the emotions, understand the facial expressions for various emotions. Natural language processing can be used to know the words related to the emotions.

The aim is to develop a computer based model which supports the autistic children to understand the emotions and express their feelings.

1. INTRODUCTION

Affective computing (Jose Maria Garcia-Garcia et al., 2021) is knowledge from different disciplines of cognitive science, and psychology. It is the advancement of technologies that can perceive, analyze, process, and simulate human emotions. It is nothing but understanding of how emotions affect behavior and thought processes in people. One of the key components of affective computing is the detection of user emotions. Technologies for affective computing are designed to understand and react based on human responses.

Emotion Artificial Intelligence is another name for affective computing. It gives computers the ability to recognize, analyze, and imitate human moods and emotions. It draws inspiration from a variety of disciplines, including psychology and cognitive science. This knowledge allows a system to process the data gathered from countless sensors to evaluate the emotional state of an individual.

Social computing connects human social behaviour to computational systems. It is built on using software and technology to create or recreate social situations and social remedies. To determine how people perceive things and use accessible social knowledge, a variety of methodologies and methods are used. These techniques and strategies are together known as social cognition. Emotion processing, social processing, mentalising, and attribution style/bias are the four important key domains in social cognition (Pinkham et al., 2014).

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