

## Chapter 102

# A Proposal for Multidisciplinary Software for People with Autism

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### ABSTRACT

*This chapter is about the study of treatments for autistic children and interventions of entertainment games with the purpose of developing a technological solution in order to promote a better adaptation between the autistic children and treatment, consequently showing better results in a shorter period of time. The multidisciplinary software for Autism treatment is being developed. It is based on PECs, ABA, and TEACCH methods, and it uses ludic games and activity interventions. Before applying technology to autism treatment, a deep study about autistic children is made. This way, concepts such as customization and the use of Kinect, Mobile (WP7), and Cloud Computer technologies take part as a stimulator system, since they are responsible for intensifying cognitive development and reducing the patient's excitement, aggressiveness, and irritability.*

### 1. INTRODUCTION

The term autism was first argued by Bleuler (1911) to designate the disorder of the loss of contact with reality, which makes the communication very difficult or even impossible. Kanner (1943) argued the same term to describe 11 children who had a quite unique behavior in common. He suggested that this had to do with an innate inability to establish affective and interpersonal contact and was a very rare syndrome, but one for which, probably, cases had been more frequently diagnosed than hitherto supposed (Lazzeri, 2008).

According to Thais Lazzeri (2011), in her article “Autism: Universe Around Me,” because of the lack of accurate clinical diagnosis, is difficult to quantify how many autistic people there are in the world. In Brazil, for example, some say 170,000 people suffer from this disorder. But the numbers are underestimated. An estimative says one million Brazilians have any degree of autism, which has dozens

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of subtypes. The degree of the disorder determines what skills an autistic person, when stimulated, can develop.

For this disease, according to the Autistic Friends Association (AMA in Portuguese), the treatment consists in psycho-educational intervention, family counseling and developing language and/or communication. These take place under three main strategies, and at the same time, the patient takes medication (AMA, 2008).

*TEACCH (Treatment and Education of Autistic and Related Communication Handicapped Children):* An educational program and clinical practice with a predominantly psych pedagogical created from a research project that sought to deeply observe the behaviors of autistic children in different situations and against different stimuli.

*PEC'S (Picture Exchange Communication System):* Communication is one of the many areas affected by autism. PEC'S is a process and assists in the development of language and proposes to implement a "way" communication between the autistic and the environment that surrounds it. The PEC'S is this fundamental instrument to assess and understand the autistic routine. Created more than 12 years the Delaware Autistic Program, this method is based on ABA (Applied Behavior Analysis) and teaches the autistic to exchange a picture for something you want.

*ABA (Applied Behavior Analysis):* A psychological approach that uses the theory of behaviorism to modify human behaviors as part of a learning or treatment process. By functionality, it assesses the relationship between a targeted behavior and the environment, the methods of ABA can be used to change that behavior. Research in applied behavior analysis ranges from behavioral intervention methods to basic research which investigates the rules by which humans adapt and maintain behavior.

Thus it is observed that in the majority of treatment for autism, proceeds from isolated form of each strategies, physical form and always needing follow-up of a specialist. Consequently development or treatment of the child is conditioned to the unique moments and isolates with the specialist and with a single method of treatment. Suppose that this procedure is to intensify the cognitive and social problem, once taken into consideration as an example. For a child that makes use of the treatment by means of the PEC's, in a social conviviality may need the letters to randomly place them in public spaces. What can be expected to create some discomfort or embarrassment, that is not a practice that stimulates the social conviviality.

In addition he said it is perceived that the activities related to treatment, independent of the strategy used PEC's, ABA or TEACCH, Occur, by the fact of being a learning moment, a realization of activity. In which they occur, by means of a situation of playful banter that comes to captivate the child and stimulate to it. Being an important fact, because it serves to one of the characteristics of autistic child that is the resistance to traditional methodologies of teaching.

Based on these arguments, we developed a multidisciplinary software for the treatment of children with autism, in which presents a structure of games, as the same and an artifact attraction is common in life and great part of the children. The act of playing, the child will develop the activities of learning, observing the characteristic of resistance to traditional teaching methods. It may be intensified the treatment by the motivation of the child to want to play with the software. The World Health Organization (OMS in Portuguese) estimates that reduce the learning time. According to Novaes (1992, p. 28)

*The teaching, absorbed in a playful, is acquiring an important aspect in developing effective and permanent of the intelligence of the child.*

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