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ScienceDirect

Procedia Computer Science 65 (2015) 285 – 293

Procedia Computer Science

International Conference on Communication, Management and Information Technology (ICCMIT 2015)

The effect of ICT on emotional education and development of young children with Autism Spectrum Disorder.

Dr. Garyfalia Charitaki[a]

[a]*Module Leader in AMC in collaboration with University of East London, Sorou 74 str, Marousi 15125, Greece*

Abstract

Through this paper there is an attempt to present the most significant outcomes of a research project designed for Emotional Education in young children with autism spectrum disorders. The role of ICT was essential not only for the design of the project but also for its effectiveness. The sample of the research consisted of 5 participants who unsuccessfully struggled to identify emotional expressions in their everyday life. Their mental age ranged between 5 and 7 years. The program's duration was 10 weeks (October 2014 – December 2015). Two, 30 minutes, sessions were conducted during each week. The assessment included differentiated teaching through drawing emotions, recognizing emotions from photographs, choosing the emotion according to the situation depicted and the use of the open access software Mood Maker. Results depict a clear improvement in children's social skills. Both educators and parents, stated a clear differentiation in children's reactions in specific emotional situations. They were also more capable to understand basic expressions such as crying or laughing.

Peer-review under responsibility of Universal Society for Applied Research

Keywords: Autism Spectrum Disorder;Emotional Education;ICT;Mood Maker;Differentiated Teaching

1. Introduction – Theoretical Background

Autism is a developmental disorder diagnosed on the basis of early-emerging social and communication impairments and rigid and repetitive patterns of behavior and interests. The manifestation of these varies greatly with age and ability, and the notion of an autism spectrum has been introduced to recognize this diversity [1]. In this research, we intend to investigate the impact of ICT in Emotional Education and Development of children with Pervasive Developmental Disorders – Autism Spectrum Disorder. Salovey and Mayer [2] defined Emotional

Peer-review under responsibility of Universal Society for Applied Research
doi:10.1016/j.procs.2015.09.081

Intelligence as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions".

More specifically, Goleman [3] mentions that Emotional Education could be categorized into the five above branches:

1. Perception of Emotion. Three subtests are included in this branch—perception of emotion in faces, in landscapes, and in abstract designs.
2. Emotional Facilitation. Expression of emotions as an opportunity for intimacy and teaching.
3. Take notice with empathy and recognition of children's emotions.
4. Understanding Emotion. Encourage the child not only to express verbally its feelings but also to identify them.
5. Managing Emotion. Setting limits and encouraging the child to find solutions to its problems.

Basic prerequisite for the transition in each level is conquest of the previous level. For children who participated in this research project the aim was to conquer the 3rd level so as to gradually move on to the next levels.

The existence of information and communication technologies (ICT) in our everyday life is an undoubted evident phenomenon. Recently, the constant development has an immediate effect on education and educational contexts [4] (Selwyn & Gouseti, 2009).

Boucenna et al [5] mention characteristically that "recently, there have been considerable advances in the research on innovative information communication technology (ICT) for the education of people with autism. Their review main objective was to provide an overview of the recent ICT applications used in the treatment of autism and to focus on the early development of imitation and joint attention in the context of children with autism as well as robotics". They highlighted the fact that there is profusion of ICT applications developed for autism. Interactive environments, virtual environments, avatars and serious games as well as telerehabilitation have been used in numerous studies in order to develop emotional skills in children with Autism Spectrum Disorder. However, contrary to the remarkable evolution of these applications their use is still restricted.

Mitchel et al [6] attempted to demonstrate the efficacy of using Virtual Environments in teaching social skills to children with Autism Spectrum Disorder. They used a sample of six teenagers. They used a Virtual Environment of real cafés and buses so as to learn where they would sit and why.

Miranda et al [7] used real-time facial synthesis of 3D characters to teach autistic people to emotional recognition based on facial expression. Communication skills in people with Autism Spectrum Disorder are impaired and as a direct result they are unable to recognize emotions in real life. They also stress the need of creating a solution to solve this problem which requires a joint effort from many research fields, such as computer vision, computer graphics, human computer interaction and facial behavior and emotions.

2. Research objective

Young children with Autism Spectrum Disorder have difficulty not only in recognizing emotions but also in expressing them. According to Brady et al [8], "research in the neurosciences has identified distinctions between neural structures that subserve cognitive intelligence and those subserving emotional intelligence. Despite high average cognitive abilities, young adults with Autism Spectrum Disorder (without an accompanying intellectual or language disorder) relatively to typically-developing peers, reported lower levels of emotional intelligence. Importantly, they did not find any statistically significant correlation between cognitive intelligence and emotional intelligence in either group. These findings also highlight the need to address not only the intellectual aspects of cognition, but also the emotional components to increase understanding of, and improve treatment for individuals on the autism spectrum. This understanding would enhance our ability to assess and support young adults, and ultimately ease their transition into adulthood". The main objective of this research is to highlight the effect of ICT