LIFEisGAME: A SERIOUS GAME ABOUT EMOTIONS FOR CHILDREN WITH AUTISM SEPECTRUM DISORDERS

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1. Introduction

LIFEisGAME software is an interactive learning tool that aims to enhance facial emotion recognition skills of children with Autism Spectrum Disorders (ASD). This serious game was developed by the Universities of Porto (Portugal) and Austin (Texas). People with ASD are less likely to attend to faces and are impaired in face discrimination tasks ((Swettenham et al., 1998; Wallace, Coleman & Bailey, 2008). Recently, technology plays an active part in helping these individuals to understand emotions and recognize facial expressions (Baron-Cohen et al., 2004; Tanaka et al., 2010).

2. Objectives

To asses the LIFEisGAME prototype game in terms of usability and motivation to play, presented in an Ipad 2 and collect information about the participant´s technology usage and emotions understanding through a parents questionnaire.

3. Method

To explore the prototype game we recalled to video recording of three case studies (n=3) during an open fifteen minutes game session. Two game modes were presented: "Build the Face" (the player draws facial expressions on the avatar´s face according to instructions) and "Memory Game" (pairing facial expressions). Participants were all male, ages varied from five to eight years old, two were verbal and one non-verbal and all had a diagnosed of Autism Spectrum Disorders. The prototype game was presented on an Ipad 2 (9.7 inches, 1024-768 resolution). Parents filled a parental consent and a questionnaire about their child´s technology usage and emotions understanding. Footages were analysed according to: length of game-play, first facial area worked on the avatar, game usability and motivation to play.

Image 1 – Printscreen of inicial game interface

Image 2 – Printscreen of game modes and game options interface

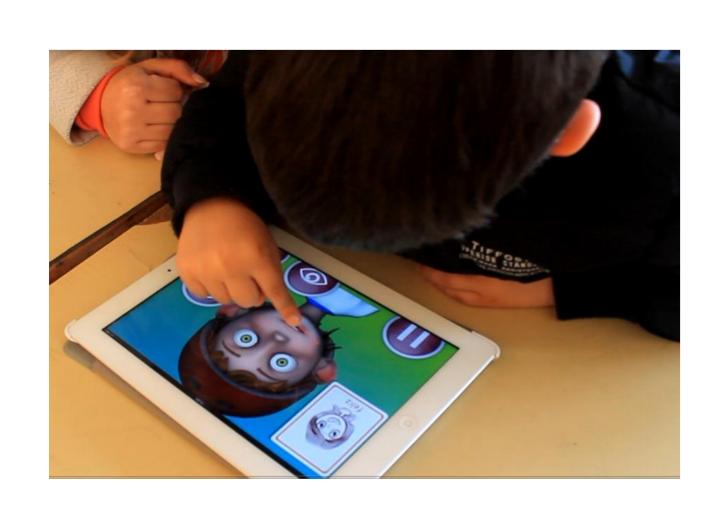Image 3 – Printscreen of Game Mode "Memory Game" interface

Image 4 – Printscreen of Game Mode "Build the Face" interface

4. Results

In terms of game-play, the three participants easily engaged in the game. In the game mode "Build the Face" all children began exploring the avatar´s mouth area to create facial expressions - recalling to the *sketching technology* . In fact, some studies showed that people with autism spend more time at the mouth and less into the eyes (Klin et al., 2002; Neumann, Spezio, Piven & Adolphs, 2006) when reading facial expressions. Some excitement and stereotyped behaviours were observed during play. The participants enjoyed the game but still needs to be simplified because some game options were not clear. All cases had previous experience with computer´s games that facilitated the game-play. Fear, disgust and surprised were the most challenging emotions to recognize. One of the participants imitated the avatar while drawing facial expressions.
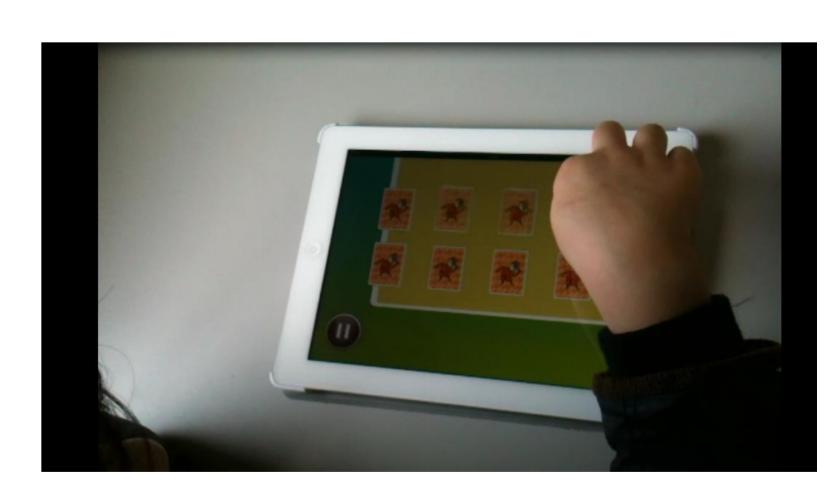
Parent´s questionnaires showed that the most easily recognised emotions were happiness and sadness. When expressing emotions, scared, surprise and disgust were the most challenging. Parents suggested adding musical stimuli to the game to promote motivation. In fact, computers were mainly used by the three participants at home to watch music videos and to play computer games rich in music, bright colours and action.

Images of game sessions – Game Mode "Build the Face" and "Memory Game"

5. Conclusions

Golan and collaborators (2009) believe that children with ASD need to be intrinsically motivated to ensure that they pay attention to social-emotional stimuli that are of little interest for them. Computers offer a consistent, stable and free of social pressure environment, that is very pleasing to children with ASD (Moore, McGrath & Thorpe, 2000). In our study it was clear that the Ipad was stimulating and engaging to the participants. Accurate recognition and interpretation of facial expressions helps individuals decide when to make socially acceptable statements and provide guidance in determining approach or withdrawal strategies in interpersonal transactions (Bal, Harden, Lamb, Van Hecke, Denver & Porges, 2009. This computer game offers a training opportunity to practice these important social skills in a fun and educative way. Although this is just a prototype it has the potential to help children with ASD to better communicate their emotions and also to better understands others emotional states.

6.References