

## Google Glasses

- Google glasses are an optical head-mounted display designed in the shape of a pair of eyeglasses
- Users can communicate with the glasses using natural language voice commands
- The glasses feature a touchpad located on the side of the google glass, a camera, and an LED illuminated display



GLASS Enterprise Edition

## Brain Power Autism System

This system uses Google Glasses to enhance social communication for children with ASD. It uses various games and applications, such as *The Face Game* and *The Emotion Game*. *The Face Game* helps the user to work on direct eye gaze and attention by detecting human faces anywhere in the users field of view. The faces are then overlaid with an augmented reality cartoon face in a manner that attempts to engage the user and attract his or her attention. *The Emotion Game* helps the user increase engagement and interest in human faces by detecting human faces and using a visual display to prompt the user to correctly identify the facial emotion in the detected face by presenting them with two emoticon choices.

### The Evidence

Keshav and colleagues (2017) assessed the tolerability and usability of the Brain Power Autism System by 21 children and adults with ASD. 91% of users demonstrated tolerability, and 94% reported the system as comfortable. ★

Liu and colleagues (2017) explored the feasibility of the system to provide coaching to two boys with ASD. Both participants reported the game as engaging and fun. As well, both boys demonstrated improvements in irritability, tiredness, stereotypy, hyperactivity, and inappropriate speech. ★

## Desktop Computer

### iSocial

This game uses a collaborative virtual learning environment and social interaction system to improve social performance and social competency for persons with ASD. iSocial uses social scenes and emotion-eliciting questions to create positive effects on social performance.

### The Evidence

Cheng and Ye (2010) analyzed the use of iSocial by three participants with ASD, and found that using the program for 17 days had significant positive effects on the participants social performance. ★

Wang and colleagues (2016) analyzed the use of iSocial by 11 children with ASD, and found that it increased embodied presence and embodied copresence in all participants. ★

Stichter and colleagues (2014) analyzed the use of iSocial on 11 participants with ASD, and found that it was delivered with fidelity when used as distance education, and that it showed promise for social competence benefits for youth. ★★

### Second Life

This system uses avatars in a virtual environment to display social scenarios that target social learning objectives, such as meeting new people, dealing with a bully, bonding with friends, confronting conflict, consoling a friend, or handling social dilemmas. It can also be used to help children with social interaction tasks, such as recognizing body gestures and facial expressions, responding and maintaining interactions at school, and initiating and maintaining interactions at a party.

### The Evidence

Didehbani and colleagues (2016) used Second Life to portray social scenarios with 30 children diagnosed with ASD. They found that the game helped to improve emotion recognition, social attribution, and executive function of analogical reasoning. ★★

Ke and Im (2013) used Second Life to improve social interaction skills of four children diagnosed with ASD. They found that the program increased social performance during the intervention, and improved social competence after the intervention. ★

## X box Kinect

- X box Kinect is a motion sensing input device that enables users to control their X Box without the user of a game controller
- Users can communicate with the console using gestures and spoken commands



## Pico's Adventures

This game uses X Box Kinect to enhance social interaction skills, collaboration skills, and social initiation skills. The aim of the game is to become friends with Pico, a friendly alien. Children do so by helping it with tasks, such as providing it with food or helping it repair its spaceship. This game is recommended to be played along a treatment plan.

Recommended sessions include:

- First session: child plays in single-user mode
- Second session: child plays along but at some point requires help
- Third session: child plays with an adult from the beginning of the session
- Fourth session: child plays together with an unknown child with ASD

### The Evidence

Maliverni and colleagues (2016) studied an inclusive design approach to develop games that are effective in terms of therapeutic objectives and that are enjoyable for children with ASD. Pico's Adventures was developed with the goal of promoting social initiation in young children with ASD. Their exploratory study found that the game was effective in eliciting social initiation behaviours in 10 children with ASD. ★