The Acting Game: Mimicry Of Emotional Song And Speech to Enhance Emotion Skills In Autism

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ADVANCING INTERDISCIPLINARY RESEARCH IN SINGING
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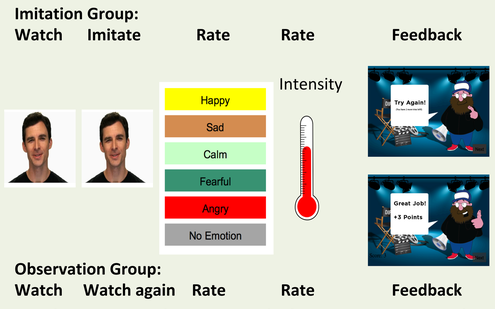
Introduction

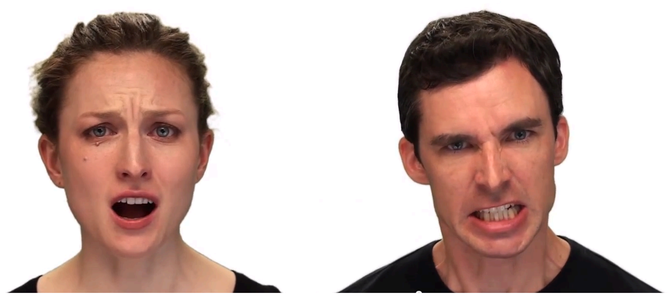
- Individuals with autism often have difficulty deciphering the emotions of others (Baron-Cohen, 2001)
- This is reflected in deficits in simulation of other's emotional expressions, neurally and peripherally (Williams et al., 2001)
- Current study: observe/interact with facial and vocal emotion videos to train perception of emotion in song and speech, in order to enhance empathy
- Game format with points in order to engage children
- Individuals with autism often respond well to emotions in music; therefore, the game begins with song and scales back to speech (Kim, Wigram, & Gold, 2009; Trevarthan, et al., 1996)

Procedure

- 2-week daily gameplay involving imitative facial mimicry of sung and spoken emotions
- Participants with high functioning autism pseudo-randomly assigned to an experimental or control condition (N = 9)



- Record EEG and EMG while viewing audio-visual recordings of emotional song, scale back to emotional speech
- Receive: Emotion identification accuracy feedback



Stimuli: Ryerson Audio Visual Database of Emotional Song and Speech (RAVDESS)

SONG ⟶ SPEECH

Happy, Sad, Calm, Fearful, Angry, Neutral, Surprised (speech only), Disgusted (speech only)

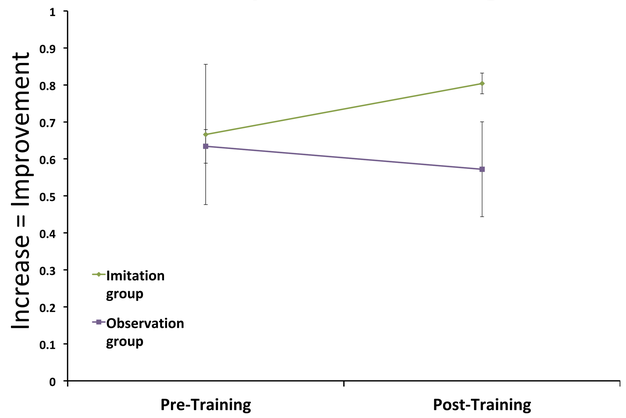
Aims

- To enhance social understanding skills for children with autism by creating a fun video game
- To observe benefits to neural responsiveness, facial mimicry, and various measures of emotional understanding and empathy

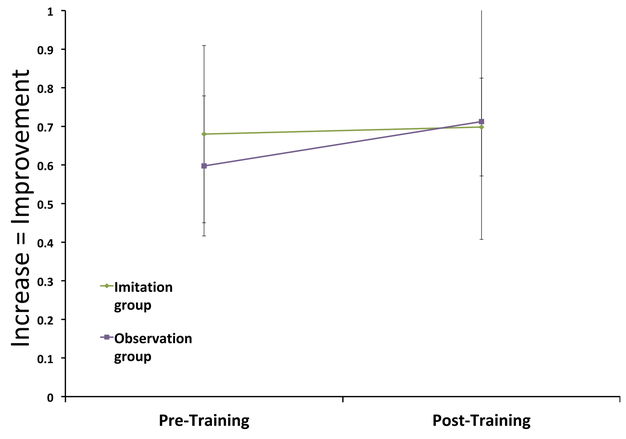
Results

- After 2 weeks of daily gameplay, the imitation group improved for recognition accuracy of song but not speech
- Scores on the Social Responsiveness Scale decreased in the imitation group only
- EEG/EMG analysis is ongoing

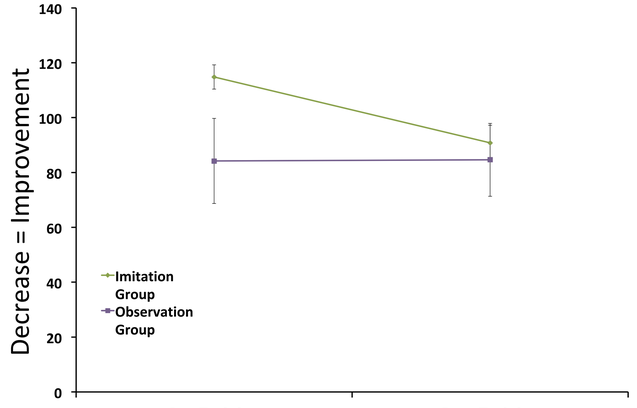
Accuracy for emotion in song



Accuracy for emotion in speech



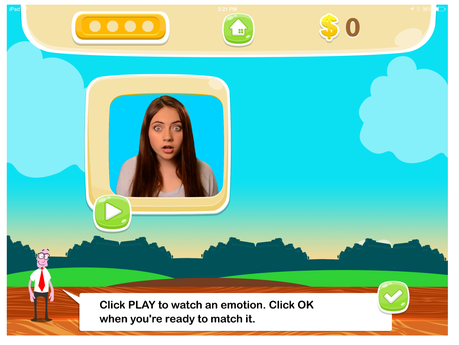
Social Responsiveness Scale

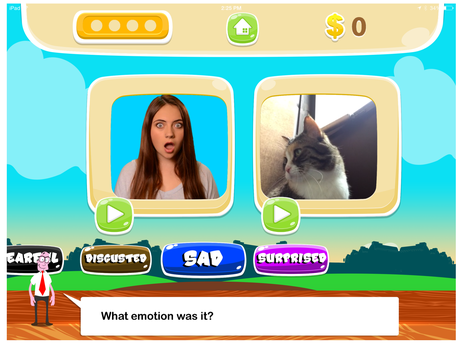


Discussion

- Preliminary results suggest that engagement with emotions via imitation may support emotional accuracy and social responsiveness in children with high-functioning autism
- Limitations: Data is preliminary (N = 9)
- Next steps: An iPad app is currently in development, to bring "Big Break: The Acting Game" to tablet devices
- This game will aim to support emotion communication in children with and without autism.
- Future research will be conducted to examine effectiveness of the next iteration of the game

Big Break: The Acting Game





Acknowledgments

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