Teaching Facial Expression Recognition to Children with Autism Spectrum Disorder

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Background
- Difficulty interpreting facial expressions is a typical characteristic of individuals with Autism Spectrum Disorder (ASD).
- The Empathizing-Systemizing Theory suggests that children with ASD have difficulty empathizing, but have a compulsive need to classify, analyze, and construct nonhuman systems (Golan, et al., 2005).
- According to the Hyper-Systemizing Theory, individuals with ASD prefer motion determined by physical patterns (Golan, et al., 2005).
- Research has shown that both video modeling and Social Stories have been successful in teaching social skills to children with ASD; however, data regarding which of the interventions is more effective and efficient in teaching facial expression recognition is lacking.

Methods
- A language assessment was conducted during the baseline phase to determine whether participants had sufficient language development to benefit from the interventions.
- An initial baseline task identified facial expressions that the children were not able to label. Participants were shown each photograph at a time in a full-screen PowerPoint presentation and were asked “How is this person feeling?”
- Several facial expressions were targeted with each participant during the study.
- A Social Story was created for each of the facial expressions that the children were not able to label, with illustrations that highlighted facial expressions.
- The Social Stories and quiz questions were created to match the specific emotions, narrative structure, and language structures used in The Transporters.
- Progress for both interventions was tracked during each session with the quizzes and a repetition of the baseline task to measure generalization.
- Each child was seen for 6 intervention sessions. Presentation of the two interventions was counterbalanced.

Social Stories
- Social Stories allow for human interaction, where the reader and listener are able to discuss important points of the story. Social Stories use both static images and text in order to explicitly explain previously-confusing situations to the individual for whom the story was developed.
- Our study utilized a modified version of Carol Grey’s Social Stories that focused on facial expressions and emotions.

Transmitters
- The Transmitters, a DVD series, aims to improve expression recognition for children with ASD, by using animated vehicles with predictable physical patterns, which according to the Hyper-Systemizing Theory are preferred by children with ASD (Golan, et al., 2005).
- Children with ASD are attracted to vehicles that follow specific tracks and allow them to experience only a limited ability to make decisions regarding the vehicle’s path (Golan, et al., 2005).
- The vehicles in The Transmitters stories follow specific predictable tracks, but model human facial expressions and emotions.

Participants
- Participant 1: Male, 6 years, 8 months old; diagnosis of mild-moderate Autism.
- Participant 2: Male, 6 years, 3 months old; diagnosis of mild-moderate Autism.

Comparison of Two Interventions
- Facial expression recognition did not improve in the generalization task, but an increase in the percentage correct for some of the quizzes associated with each intervention was observed.
- Afraid was targeted throughout the study and mastered at the end, indicating a need to spend more time on each target emotion.
- The participant’s eye contact with the examiner during the Social Stories increased steadily throughout the study.
- Increase the number of intervention sessions for each intervention and present fewer emotions per session.

Comparison of Participant 2 Results
- Results for this participant were variable. There was a notable change in the participant’s facial expression recognition during the generalization task for Social Stories, although quiz scores did not reflect an improvement.
- In the first two sessions, participant 2’s performance increased on the quizzes for both interventions, suggesting that more intervention sessions for each target emotion might facilitate learning.

Factors Affecting Results
- Participant 2 experienced significant routine changes while this study was being conducted. It was noted that he experienced irregular sleeping patterns throughout the study.
- He received two Wisconsin Early Autism Project (WEAP) sessions the same day he attended each of our sessions; he was brought to sessions by various caregivers.
- His Speech Language Pathologist indicated that “wh” questions were one of his IEP goals, which might have influenced his ability to comprehend the quiz questions for both interventions, as the “wh” questions required a broader comprehension of how to formulate the answer.

Discussion/Future Research
- This study demonstrated the need to utilize a slower pace and include scaffolding while reading Social Stories in order to improve quiz scores.
- This study illustrated the uniqueness of each child with ASD. It also indicated a need for further research in order to determine which interventions are more effective and efficient for children with ASD.
- There are many factors in teaching/learning the complex task of facial expression recognition, so there are many directions for future studies:
- Larger-scale study with children who have a range of severities of ASD, that also includes a control group.
- Utilize statistical analysis to determine significance of any differences that may be indicated through the study.
- Increase the number of intervention sessions for each intervention and emotion.
- Include a condition where emotion vocabulary is used in multiple contexts, to facilitate generalization.
- Experiment with the types of illustrations used in Social Stories.
- More closely evaluate the effect of gaze-directed eye contact on facial expression recognition.
- More closely evaluate the types of photographs used for the baseline measure.

Selected References:
- Contact Kia Schilling: schillkl@uwec.edu

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