The Development of Interpersonal Skills Through Narratives and Technology (DISTNT) Program for High-Performing, Transition-Age Youth With Level 1 Autism Spectrum Disorder

Callie Hill, Jessica Klein, and Kevin Spath

Rehabilitation and Mental Health Counseling, University of South Florida

Background & Significance

Problem Statement:

- Individuals with level 1 autism (L1-ASD) are capable of being successful in higher education and employment with appropriate support
- This group experiences the poorest transition outcomes:
  - 3rd lowest postsecondary enrollment rate
  - Highest unemployment rate compared to individuals with other types of disabilities (Anderson et al., 2018)
- Among 28 evidence-based practices for students with ASD identified by The National Clearinghouse on Autism Evidence and Practice, only the WAGES program includes a component in career-related social skills (Sam et al., 2020), exemplifying the need for a transitional social skills training program (Park et al., 2015)

Purpose:

- Develop a web-based transitional social skills intervention that promotes postsecondary success for high-performing, transition-age youth (TAY) with L1-ASD
- Uniquely embed a social narrative (SN) framework within mobile app development
- Aim to enhance participants' theory of mind, technology-related career interest, and perceived social self-efficacy

Screening Procedure

Recruitment:

- TAY or their parents submitted answers to a digital brief pre-screening questionnaire
- Required: participants must be between 14-21 years of age; read, write, and speak English; have above-average cognitive ability; have a L1-ASD or Asperger's Syndrome diagnosis; have access to a computer connected to Internet; and spend at least 80% of school time in general education
- Preferred: participants have an interest in technology

Screening:

- Participants selected for further screening completed a digital informed consent process and intake form
- Participants were selected for an interview to verify eligibility, gather information, and customize the intervention for each participant
- Baseline data were collected using Strange Stories, which assesses their ability to predict what a person might do in a situation based on the mentalistic and physical inferences made (must score less than 5/8 to be included)

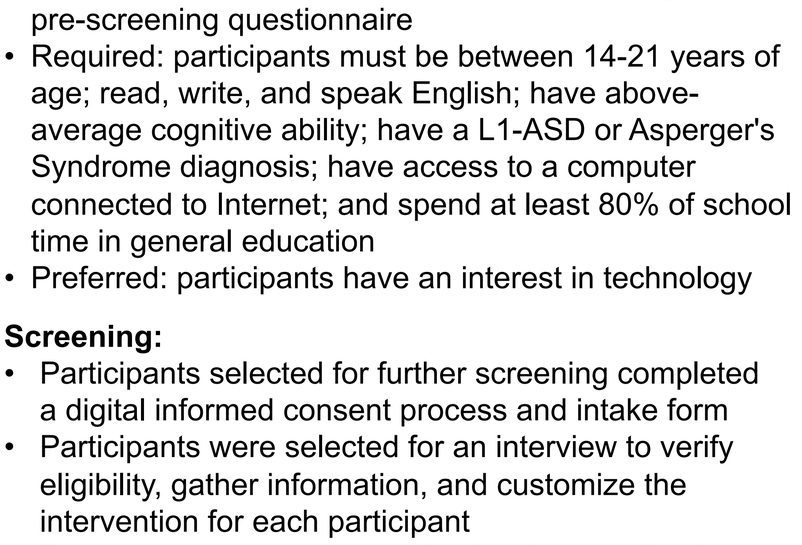

Figure 1. Example of SN Dialogue Tree

Program Structure

Platform:

- MAD-learn is an educational technology company that specializes in training teachers to utilize mobile apps to strengthen learning in any subject
- Its virtual platform, supported by a mobile application development (MAD) curriculum, will be used to implement the DISTNT program
- MAD curriculum follows an "ideate, plan, design, build, test, launch" format that is based on the "learning by designing" framework (Shaffer, 2004)

Figure 2. Example of a home page from an app created on Mad-learn

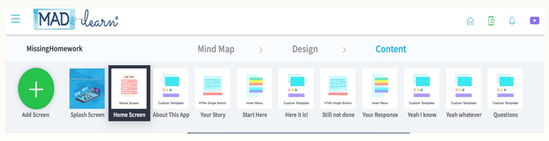

Figure 3. Illustrates the app screen dock from an app created on Mad-learn platform

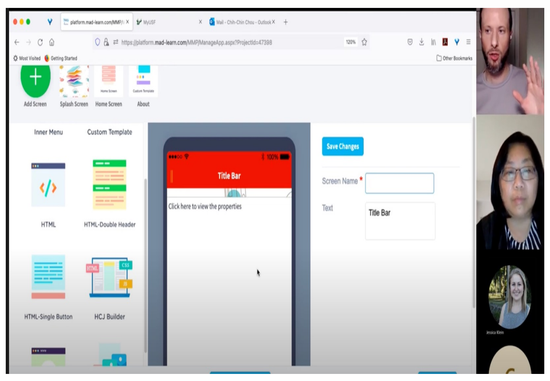

Figure 4. Example of a mock lesson on MAD-learn

Structure:

- 8-week virtual social skills training protocol
- Combines SN with MAD to help TAY with L1-ASD learn how to reason through complex academic and professional social situations

Approach:

- Participants create branches of reciprocal conversations (see Figure 1) from two themes (i.e., college and employment) and convert them into "choose-your-adventure" mobile apps
- Learn basic coding skills and survey people to discover various social responses to each situation developed in the mobile apps

Pilot Case Study Participant

Participant:

- 17-year-old male
- L1-ASD high school student with above average cognitive ability

Approach:

- Completion of one orientation session, including:
  - Pilot study overview and timeline
  - SN explanation and discussion
  - MAD-learn platform introduction
  - MAD demonstration
- Completion of the four sessions of Module 1: Communication, including:
  - Didactic instruction on types of communication
  - SN ideation and development incorporating the types of communication
  - MAD with progressively advanced features
  - 5-minute MAD presentation

Social Interaction Differences

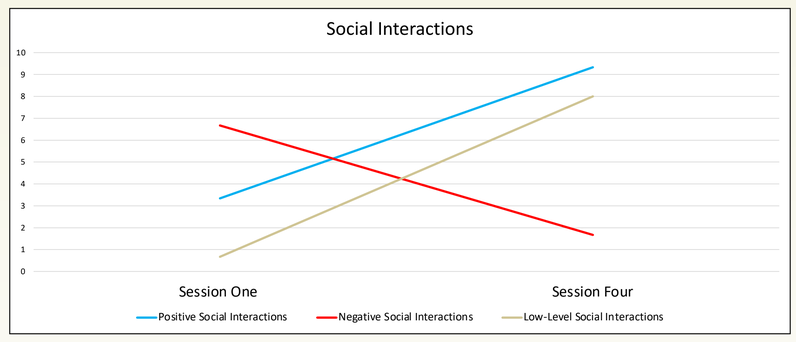

Figure 5. Analysis indicated increased positive and low-level social interactions and a decrease in negative social interactions after completing 4 sessions

Behaviors	Session One	Session Four	% of Change
Smile	0	7.33	73.22%
Looking Away	4.67	0.67	70.67%
Functional Communication	0.67	8	100%

Figure 6. Behavioral observations recorded show differences in positive, negative, and low-level social behaviors between session 1 and session 4

Discussion & Future Plan

Results:

- Positive social interactions (e.g., smiling) and low-level social interactions (e.g., functional communication) increased after 4 sessions
- Negative social interactions (e.g., looking away) decreased after 4 sessions
- Overall, the pilot case study demonstrated the usability of the DISTNT program with preliminary positive outcomes

Limitations of DISTNT:

- Some sessions are dedicated to MAD while others are dedicated to SN, so it is difficult to compare them
- Behavioral observations occurred through online interactions
- Interrater reliability – behaviors observed may be perceived differently between raters
- MAD-learn has limited flexibility for students with higher levels of technical ability
- Facilitators' self-disclosures in lessons may vary based on facilitator's experience and participant's age and maturity level

Future Implementation of DISTNT:

- Four participants have been recruited and completed the first week's orientation sessions
- Multiple-baseline single-subject method will be used for evaluating the outcome of the DISTNT program

References