Evaluation of Narrative Language Intervention for Adolescents with Down Syndrome

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Introduction

- Almost all children and adolescents with Down syndrome (DS) demonstrate significant deficits in their language abilities. Children and adolescents with DS:
  - Communicate in shorter sentences,
  - Have reduced intelligibility due to poor articulation, and
  - Have poor narrative ability.
- Poor language ability, particularly narrative ability, is likely to create communication barriers with typically developing peers, and may lead to social isolation.
- Studies exist that demonstrate continued gains in language development as a result of intervention for individuals with DS; however, Wennblom's (2012) study of a narrative language intervention (NLI) for adolescents with DS did not reveal significant treatment-induced gains.

Current Study

- The current study reanalyzes Wennblom's data using a potentially more sensitive measure of narrative language and aims to answer the following questions:
  - Does a computer-based narrative language intervention lead to significant increases in narrative language ability based on the Narrative Scoring Scheme (NSS; Heilmann, Miller, Nockerts & Dunaway, 2010)?
  - Is the NSS more sensitive than the Index of Narrative Complexity (INC; Peterson, Gillam, & Gillam, 2008) to changes in language ability?

Method

- **Participants**
  - Three monolingual English-speaking adolescent females with DS, ages 13:7, 14:8, and 16:3 years.
  - All participants had received speech and language services for at least 12 years.
  - All participants were able to expressively combine words and had a mental age of at least 3.5 years.
- **Procedure**
  - Participants completed 4-5 baselines sessions, 12 intervention sessions and one follow-up session.
  - To monitor progress, during every session, participants completed three narrative tasks:
    - Story Recall,
    - Sequence Story Generation, and
    - Scene Story Generation.
  - Treatment utilized an interactive computer program, 'Team up with Timo' to target three narrative goals:
    - Character and Setting,
    - Initiating Event, and
    - Consequence.
  - During each session, participants completed six interactive language games, a story picture sequencing with a story retell, and two story read throughs, once with, and once without comprehensive questions.
  - Each narrative goal was the focus of four intervention sessions and was highlighted and described 8 to 10 times per session.

NSS Results

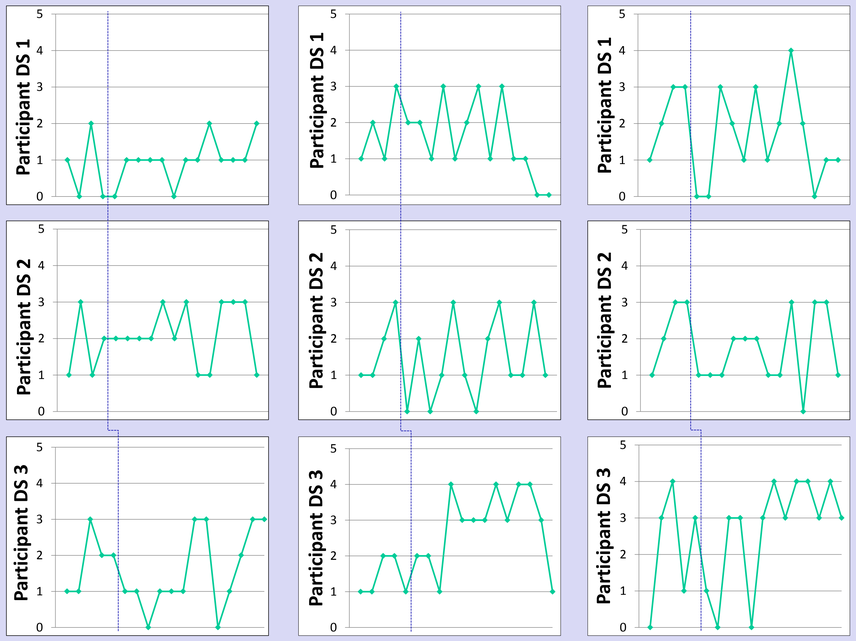

Fig. 1. Story Sequence Task participant performance on Character Development, Initiating Event, and Consequence when coded using NSS

INC Results

Fig. 2. Story Sequence Task participant performance on Character Development, Initiating Event, and Consequence when coded using INC

Coding

- Wennblom's data was initially coded using the INC which rates narrative measures on a 0-3 scale.
- The current study re-coded the narrative samples using the NSS, which uses a 5 point scale.
- We predicted the NSS would be more sensitive to improvement as the difference in narrative quality is spread over a wider range of levels.
- The NSS coding reliability of was 88% or higher in all categories (i.e., Introduction, Character Development, Initiating Event, and Consequence) and the overall NSS reliability was 93%.

Findings

- Improvements were seen, though small, across all tasks, participants, and narrative measures, as was also evident in Wennblom's orginal study.
- The Sequence Picture context (see Figure 1) resulted in the most improvement for NSS, while the Scene Picture context demonstrated the most improvement with INC.
- Participant DS3 improved across more measures than the other participants.
- Character Development improved the most across contexts, with two participants demonstrating significant improvement across all three contexts.

Discussion

- Both scoring schemes produced inconclusive results; however, every participant showed improvement on at least one measure in every context.
- NSS was not more sensitive in detecting changes in narrative ability than the INC. However, because neither scoring system yielded participant improvement, it is not possible to conclude if one would be more sensitive than the other under different circumstances.
- Researchers should continue developing and evaluating the use of language treatments to increase the narrative abilities of people with DS based on:
  - The small gains made in the current study,
  - The success of previous language intervention with this population, and
  - The success of narrative language interventions with other populations.
- Further research will help elucidate for which populations this intervention is appropriate, and which procedures will produce positive narrative ability gains for people with DS.

Key References

Heilmann, J., Miller, J., Nockerts, A., & Dunaway, C. (2010, May). Properties of the narrative scoring scheme using narrative retells in young school-age children. American Journal of Speech-Language Pathology, 19, 154-166.

Petersen, D.B., Gillam, S.L., & Gillam, R.B. (2008). Emerging procedures in narrative assessment: The Index of Narrative Complexity. Topics in Language Disorders, 28, 115–130

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