



# Narrative Language Intervention in Bilingual Children with Down Syndrome



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## Background

Down syndrome (DS) is a common chromosomal disorder in the United States. Approximately 6,000 babies are born each year with the syndrome, or 1 in 700 [1]. Another growing population is those who speak a language other than English. Current data estimates this population to be about 20% of those aged 5 years and over [2]. Although there is limited data on the population of bilingual children with DS, applying this data, it is likely that approximately one fifth of children with DS are also bilingual. Bilingualism in individuals with DS is a topic of continued interest for research and is a relatively under-investigated area.

There are widespread misconceptions regarding the impact of bilingual environments on the language development of children with DS and related implications for educational practice. However, current research suggests that second language development does not negatively impact overall language development in individuals with DS [3]. Furthermore, there is evidence of cognitive, social and cultural benefits of bilingualism [4,5]. Speech-language pathologists (SLPs) must use evidence-based practice (EBP) to ensure they are providing high-quality services. Because limited research exists regarding intervention for bilingual children with concomitant disorders, SLPs may struggle to apply EBP to modify and create intervention plans. Therefore, this research aims to detail this process by presenting a clinical scenario of a bilingual clinician researching and developing an intervention plan for a bilingual child with DS by summarizing and connecting existing research regarding narrative interventions, bilingualism, and children with DS.

## Clinical Scenario

Nadie is a bilingual SLP working in a clinical setting. Her client, Sierra, is a 12-year-old bilingual student with DS. Sierra receives speech-language therapy at school that focuses largely on improving her speech sound production, but Sierra's mother and teacher have expressed concerns with her language and reading comprehension. Nadie is tasked with designing an evidenced-based treatment for Sierra that will target her specific needs. Nadie has been hearing more discussion regarding narrative intervention and wonders if it would help her client. She decides to review the literature and compare her findings with Sierra's profile.

## Clinical Questions

Nadie is aware of the existing research supporting positive outcomes of narrative intervention. However, there is a general lack of research about children with DS, particularly bilinguals with DS. Therefore, she aims to investigate evidence-based research practices for bilingual children with DS. To inform her research, she focuses on answering the following three clinical questions:

1. What are common patterns of language and literacy in children with Down syndrome?
2. How can clinicians support language development and reading comprehension through narrative invention using evidence-based treatment?
3. How can clinicians modify intervention to support the dual language needs of their clients?

## Literature Review

Nadie's goal was to provide services to improve Sierra's language and reading comprehension due to its academic and social implications [6,7]. In order to provide high quality, evidence-based services and to develop a prospective treatment plan, she sought to inform herself about her client and possible interventions. First, she reviewed common patterns of language and literacy in children with DS. After referring to the literature, she found that the language profile of children with DS was characterized by impaired overall language development with relative strengths in receptive language abilities and nonverbal cognition and weaknesses in expressive language abilities, phonology, vocabulary, and morphosyntax [8,9,10]. Next, she reviewed literature on how she might support both language development and reading comprehension and explored the possibility of narrative intervention. She established that narrative intervention commonly uses visual supports for story grammar and emphasizes causal and temporal relationships [11]. Beyond targeting these elements, she discovered that narratives and story retell can support Sierra both socially and academically, enhance vocabulary, and provide an authentic context that is conducive to fostering longer, more complex utterances [10].

She also ascertained that narrative intervention has been employed with special populations including bilingual children, children with ASD, and children with language impairment [6,7,12]. Finally, because of Sierra's dual-language needs, she also examined the literature to determine how she might modify the intervention. Considerations for dual-language service delivery include a high quality of instruction over a language preference. She found no clear evidence regarding how the method of bilingual delivery should take place regarding alternating language at a specified ratio or time period.

## Steps of the Narrative Language Intervention [7]

### Macrostructure - Story Retell (SR)

1. Clinician models story with visual supports
2. Ask "Wh" questions:
  - a. Who was the story about
  - b. What was his/her problem?
  - c. How did he/she feel about the problem?
  - d. What did he/she do to fix the problem?"
  - e. How did the story end?"
3. Story retell with pictures and icons and full support from clinician
4. Story retell with icons, clinician provides fewer prompts/partial support
5. Independent SR without pictures and icons, clinician listens without providing support

### Macrostructure - Personal Generation (PG)

6. Related personal story generation, clinician provides visual support
7. Retell with pictures and visuals and full support from clinician
8. Retell with visuals, clinician provides fewer prompts/partial support
9. Independent PG retell without pictures and icons

### Language Complexity - Vocabulary, Morphology, Syntax

10. Casual connection target: *because*
11. Temporal connection targets: *when, after*
12. Relative clause targets: *who, which, that*

## Intervention Plan

After analyzing the benefits of a narrative intervention and determining that it could meet Sierra's needs, she created a structured and individualized narrative intervention plan utilizing the Story Champs curriculum. She considered scheduling time for each language within each lesson, alternating day by day, by week, and a block method. She chose to alternate weekly because this format would allow for consistency and completion of one Story Champs lesson per treatment session. Nadie is fortunate to have the ability to provide bilingual services to Sierra, but she understands other clinicians may structure their treatment differently. They may choose to model the intervention targets and language of treatment according to a bilingual school schedule, or topics that are learned specific to each language in order to maintain cohesion with curriculum. If clinicians are monolingual, they may use family members or other bilingual professionals to assist them with treatment in both the client's languages.

The intervention program followed a procedure of first targeting macrostructure through retell and personal generation. During weeks one through six, Nadie focused on modeling the story and supporting Sierra in story retell through pictures and icons included in the curriculum. See Table for detailed procedures. Sierra demonstrated readiness to include additional components and story retell was elicited weekly in the non-treated language as well as treated language to determine impacts of cross-linguistic transfer. Sierra's performance was also probed for a personal generation in the treated language weekly. Intervention targets were individualized based on the challenges of the client determined during the pre-test period. After Sierra was able to retell a complete episode, beginning in week seven, Nadie modeled microstructure language complexity targets using Blitz stories in English and Spanish, introducing a new element when Sierra demonstrated readiness. Language complexity targets include vocabulary from stories, casual connections (because), temporal connections (when, after), and relative clauses (who, which, that).

Nadie's plan for progress monitoring included utilizing clinical judgement after each session to make necessary adjustments and to using the Frog Story and NLM:K to compare to pre-assessment data. While carrying out the proposed intervention plan, Nadie will monitor Sierra's progress and integrate continued feedback from family and other professionals to determine and implement adjustments as needed to ensure effective treatment.

## Limitations and Future Research

Nadie has combined the three components of evidence-based practice (EBP). According to the American-Speech-Language-Hearing Association (ASHA), EBP includes clinical expertise, defined as judgement and critical reasoning acquired through professional experiences; evidence gathered via the best available scientific information, and from data and observations collected from the individual client; and client and family/caregiver perspectives which include their values and priorities informed by their unique personal and cultural circumstances. Though the research regarding language intervention for children with DS is limited, Nadie has used the evidence currently available to her and will continue to incorporate into Sierra's intervention plan her own clinical judgements and expertise as well as individualized information about Sierra, and parent wishes to further to inform her decisions. EBP incorporates all three elements to make an informed decision to the best of one's ability. Nadie's suggests for future research to include more empirical data to further validate the effects of narrative language intervention on bilingual children with DS to strengthen her decision and future treatment.

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