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Five Principles to Consider When Providing Narrative Language Intervention to Children and Adolescents With Developmental Disabilities

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For many verbally expressive children and adolescents with developmental disabilities, it is important for speech-language pathologists to target narrative language skills in intervention. Although relatively little empirical evidence exists examining the narrative language profiles of children and adolescents with developmental disabilities, even less evidence exists evaluating narrative interventions for this population. Despite these limitations, drawing from research primarily involving adolescents with Down syndrome (DS), the author highlights five research-supported principles for clinicians to consider when designing and implementing narrative-focused interventions for individuals with developmental disabilities.

For many verbally expressive children and adolescents with developmental disabilities, it is important for speech-language pathologists to target narrative language skills in intervention. Relative to language obtained during freeplay or conversation, narrative language is a rich context that comprises microstructural and macrostructural language elements (Kintsch & van Dijk, 1978). *Microstructural* narrative language includes vocabulary, morphology, and syntax primarily at the sentence level, while *macrostructural* narrative language comprises the inclusion of content, organization, and overall quality at a global, holistic level. Although relatively little empirical evidence exists examining the narrative language profiles of children and adolescents with developmental disabilities—information needed to better understand the necessary intervention goals—even less evidence exists evaluating narrative interventions for this population. Despite these limitations, drawing from research primarily involving adolescents with Down syndrome (DS), I highlight five research-supported principles for clinicians to consider when designing and implementing narrative-focused interventions for individuals with developmental disabilities. Whenever possible, I also draw upon research focused on other populations, including fragile X syndrome (FXS) and Williams syndrome (WS).

Principle 1: Narrative language is a persistent area of language difficulty

For most children with an early history of language impairment, difficulties in narrative language persist well into school age and adolescence. Such weaknesses have been well documented with children with primary language disorder (PLD)—that is, children with language weaknesses despite having average to low-average nonverbal cognitive abilities (e.g.,

Bishop & Edmundson, 1987; Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Wetherell, Botting, & Conti-Ramsden, 2007). For example, in a longitudinal study of 538 children, Fey and his colleagues (2004) found that children identified in kindergarten as language impaired, and who continued to meet diagnostic criteria for language impairment in the fourth grade, demonstrated significant weaknesses on both microstructural and macrostructural narrative measures in the fourth grade relative to children with typical language development. Additionally, children identified as having PLD in kindergarten, but who no longer met criteria for language impairment due to average level performance on norm-referenced standardized language tests in the fourth grade, continued to demonstrate weaknesses in narrative language.

Studies of children with developmental delays also reveal persistent difficulties with narrative language. At the microstructural level, there is evidence of individuals with Down syndrome (DS) as well as those with fragile X syndrome (FXS) demonstrating significant weaknesses on a variety of narrative microstructural measures relative to younger children with typical development of similar nonverbal mental age (Boudreau & Chapman, 2000; Chapman, Seung, Schwartz, & Bird, 1998; Finestack & Abbeduto, 2010). The participants with DS or FXS in these studies have ranged in age from 5 to 26 years, indicating that microstructural narrative elements are an ongoing weakness for many children and adolescents with developmental disabilities. For example, in the Finestack and Abbeduto (2010) study, the participants with DS ranged in age from 12 to 23 years, and the participants with FXS ranged in age from 11 to 21 years. In this study, narratives elicited using a wordless picture book were analyzed using Developmental Sentence Scoring (DSS; Lee, 1974), a multidimensional analysis of morphology and syntax. Relative to younger children (3 to 6 years of age) with typical development and of similar nonverbal cognitive ability, both the individuals with DS and those with FXS demonstrated significant weaknesses in sentence complexity (DSS Total Score). Additionally, the individuals with DS produced significantly more grammatical and/or semantic errors (DSS Sentence Point).

Although much less evidence exists evaluating the macrostructural language abilities of individuals with developmental disabilities, studies have documented significant macrostructural weaknesses in DS (Boudreau & Chapman, 2000; Miles & Chapman, 2002) and Williams syndrome (WS; Marini, Martelli, Gagliardi, Fabbro, & Borgatti, 2010). In their study of 12- to 26-year-old adolescents and adults with DS, Boudreau and Chapman (2000) found that relative to younger children of similar mental age, the individuals with DS demonstrated significant weaknesses in their use of cohesion. The narratives in this study were elicited using a short wordless film. Similarly, in their study of 6- to 25-year-old individuals with WS, Marini and his colleagues (2010) found that the individuals with WS included a greater percentage of coherence errors and less thematic information than a younger group of children with typical development. In this study, narratives were elicited using a single picture scene as well as 6-picture sequences depicting cartoon stories.

It is clear that most individuals with developmental disabilities, including those with DS, FXS, or WS, do not meet chronological age expectations for narrative language. This is true even for young adults with developmental disabilities. Moreover, when compared to younger children of similar mental age, individuals with developmental disabilities display many weaknesses in narrative language based on both microstructural and macrostructural measures. This suggests that their impairment is greater than would be expected based on their nonverbal cognitive abilities. Despite these weaknesses on both microstructural and macrostructural narrative measures, it is very important to highlight that these weaknesses do not emerge on all microstructural and macrostructural measures. Moreover, for some specific measures, outcomes vary across studies. Thus, it is important for clinicians working with individuals with developmental disabilities to monitor narrative development at both microstructural and macrostructural levels well into adolescence and young adulthood, while

paying careful attention to the particular narrative measures examined and the individual being served.

Principle 2: Macrostructural narrative language may be a relative strength for adolescents with developmental disabilities

As noted above, microstructural and macrostructural narrative language weaknesses are not uniform across all measures. In fact, when examined holistically, it appears that most individuals with developmental disabilities demonstrate relatively stronger macrostructural language abilities than microstructural language abilities. Despite the macrostructural weaknesses of children and adolescents with DS or WS described above, there are several studies that have found no significant differences in the macrostructural skills of individuals with developmental disabilities relative to younger matched samples of children with typical development. For example, Kay-Raining Bird and her colleagues (Kay-Raining Bird, Cleave, White, Pike, & Helmkey, 2008) compared children and adolescents with DS to younger children with typical development matched on reading ability. The results yielded no significant group differences on a measure of narrative episodic structure elicited using picture sequences. Additionally, Keller-Bell and Abbeduto (2007) found no significant differences between adolescents and young adults with DS, those with FXS, and younger children with typical development matched on nonverbal mental age on a number of narrative macrostructure measures, including the use of mental state verbs, character names, and dialogue, despite the individuals with DS producing significantly fewer grammatically correct communication units (C-units, independent clauses and their modifiers).

There is also documentation across studies of individuals with DS outperforming younger matched children with typical development on several macrostructural measures. For example, Keller-Bell and Abbeduto (2007) found that the adolescents and young adults with DS in their study included significantly more uses of onomatopoeia and exclamations and had a greater diversity and density of narrative devices than the younger children with typical development. Similarly, relative to younger language-matched typically developing children, individuals with DS have been found to include significantly more narrative events (Boudreau & Chapman, 2000) as well as plot, theme, and episodic content in their narratives (Miles & Chapman, 2002). In both the Boudreau and Chapman (2000) and Miles and Chapman (2002) studies, the individuals with DS had significantly weaker microstructural language skills evidenced by significantly shorter mean length of utterances and number of different words.

Similar patterns have been found for individuals with WS. Reilly, Losh, Bellugi, and Wulfeck (2004) found that children with WS (aged 4 to 12 years) demonstrated a significantly greater proportion of morphological errors and a significantly smaller proportion of complex syntax than children with typical language development matched for chronological age based on narrative language samples elicited using a wordless picture book. Despite these differences on microstructural measures, the performance of the children with WS was significantly stronger than both children of the same age with specific language impairment or typical language development on two macrostructural measures: proportion and frequency of evaluative devices (e.g., cognitive inferences, intensifiers, hedges).

Thus, although Principle 1 presents evidence documenting narrative weaknesses at both the microstructural and macrostructural narrative levels, Principle 2 highlights findings that suggest that narrative deficits are not uniform across individuals with significant developmental disabilities. In particular, it appears that for individuals with DS, macrostructural narrative language is a strength relative to microstructural narrative language. For individuals with FXS or WS, the pattern of narrative strengths and weaknesses is not as clear, but it is evident that individuals with FXS or WS are likely to demonstrate strengths in narrative language that would not be predicted based on their nonverbal cognitive abilities. From a clinical standpoint, this suggests that while it is likely that macrostructural narrative

language will need to be targeted in intervention for many individuals with developmental disabilities, due to relative strengths in macrostructure language development, the narrative context may prove to be an appropriate context to use to target weaker language areas, such as microstructural language.

Principle 3: Evidence supports narrative intervention for adolescents with developmental disabilities

Very few studies have examined the impact of interventions targeting microstructural and/or macrostructural narrative language abilities for children with developmental disabilities. In contrast, a modest number of studies evaluating interventions targeting narrative skills have included participants with primary language disorder or who are at risk for language learning difficulties (e.g., Davies, Shanks, & Davies, 2004; Hayward & Schneider, 2000; Petersen, Gillam, & Gillam, 2008; Swanson, Fey, Mills, & Hood, 2005). Such studies have revealed positive narrative outcomes, particularly for macrostructure measures, with moderate to large effect sizes (see Petersen, 2011). Although these findings suggest that interventions focusing on narrative structure may be efficacious for children and adolescents with developmental disabilities, we have little empirical support for this due to a lack of studies conducted.

To date, there are very few studies that have evaluated interventions for children and/or adolescents with developmental disabilities targeting complex language abilities (e.g., Camarata, Yoder, & Camarata, 2006; Hewitt, Hinkle, & Miccio, 2005; Schoenbrodt, Eliopoulos, & Popomaronis, 2009). Most existing studies have examined complex language interventions for individuals with DS and have been small-scaled, single-case design studies. Important, in general, these studies indicate that study treatment led to language gains for the participants. For example, Schoenbrodt et al. (2009) examined the feasibility of a parent-implemented intervention to improve the narrative language abilities of two 8-year-old children with DS. Parents of the two participants completed a training session that included general information on narrative language and narrative language development as well as instructions for the tasks the parents would be asked to complete with their children. After initial training, parents followed a 4-week prescribed intervention schedule. During this time, the parents completed several narrative activities with their children, including semantic word maps, discussion questions, presentation of story grammar elements, and encouraging use of cohesive devices. For both participants, the intervention focused on a single book. Based on pre- and post-test comparisons on story generation and retell tasks, both participants made gains in their narrative language at the microstructure (i.e., number of C-units, mean length of utterance, and vocabulary) and the macrostructure (i.e., use of temporal concepts and use of cohesive and transition terms) levels. Additionally, both parents noted gains in their child's narrative performance.

The Camarata et al. (2006) study involved six verbally expressive children with DS between the ages of 4 and 8 years. Each child completed six individual intervention sessions in which interventionists applied speech and general grammatical recasts to the children's spontaneous conversational utterances. Results indicated significant gains in mean length of utterance for five of the six participants. In another study, also targeting grammatical language, Hewitt et al. (2005) examined the efficacy of a hybrid approach comprising recasts and elicited imitations of target forms. The recasts and imitation prompts were embedded in conversations focused on recent experiences and comments elicited from photographs. Three adults with DS ranging in age from 29 to 52 years participated in 12 weekly intervention sessions. Results indicated that each of the three participants significantly improved their spontaneous use of their targeted grammatical forms (i.e., pronoun *I*, third person pronouns *he* and *she*, and prepositions) based on pre- and post-test comparisons.

Each of these three studies indicate that whether targeting macrostructural narrative elements (e.g., Schoenbrodt et al., 2009) or grammatical language in a general (e.g., Camarata, et al., 2006) or in a more focused manner (e.g., Hayward & Schneider, 2000), children and adolescents with DS are able to make significant gains in their language abilities. In addition to this evidence of intervention-induced growth, it is important to note that several studies have found that individuals with DS, including school-age children and young adults, continue to make significant gains in language development (Chapman, Hesketh, & Kistler, 2002; Chapman, et al., 1998; Thordardottir, Chapman, & Wagner, 2002). Thus, although much more research needs to be conducted in this area, the use of interventions for children and adolescents with developmental disabilities targeting the development of narrative language skills is supported.

Principle 4: Narrative interventions for adolescents with developmental disabilities may require increased use of visual aids to support the use of narrative language

Studies supporting the use of narrative interventions for children with primary language disorder (PLD) or who are at risk for language impairment have generally used explicit teaching techniques when targeting narrative structure (see Boudreau, 2008). Although Petersen (2011) noted that there is relatively little overlap between narrative intervention procedures used across researchers, he found that most studies used visual aids in the form of cue cards (e.g., Hayward & Schneider, 2000) or representative pictures that identify story grammar components. Thus, visual supports have been a primary component of narrative interventions for children with language impairment without significant delays in cognitive development.

The use of visual supports with individuals with developmental delays may be particularly necessary given that both children and adolescents with DS demonstrate significant deficits in verbal short-term memory. For example, results from a recent meta-analysis based on 145 children and young adults with DS indicated that individuals with DS have significantly weaker verbal short-term memory skills than children with typical development matched on nonverbal mental age (Naess, Halaas Lyster, Hulme, & Melby-Lervag, 2011). In this analysis, the individuals with DS, on average, performed approximately 1 SD below the matched controls. These weaknesses in short-term memory negatively impact narrative language performance. In fact, in a study of boys with DS, boys with FXS, and boys with a dual diagnosis of FXS and autism spectrum disorders, Estigarribia and his colleagues (2011) found that in a narrative recall task, the inclusion of narrative elements (e.g., introduction, initiating events, internal response) was predicted by short-term memory and nonverbal mental age. Additionally, after controlling for these factors, it was found that each of the groups of children with a developmental disability performed significantly below the group of children with typical development of similar mental age, further indicating significant weaknesses in narrative language.

Chapman and her colleagues (Chapman et al., 1998; Miles, Chapman, & Sindberg, 2006; Roberts, Chapman, Martin, & Moskowitz, 2008) recommend that to offset the short-term verbal memory processing weaknesses of individuals with DS, interventionists should use contexts that support these weaknesses, as well as reduce formulation demands and make speaker intent and reference clear. These suggested practices for interventionists can be largely accomplished through the use of visual aids. Chapman et al. (1998) suggest that the use of visual aids in intervention should not only facilitate new learning, but should also lead to automatization of the learning. Additionally, the inclusion of a visual support system in narrative interventions for children and adolescents with developmental disabilities should increase generalization of narrative skills and support long-term intervention gains.

Principle 5: Clinicians must carefully consider the targeted narrative context for treatment goals

The specific narrative context selected to use in interventions targeting narrative microstructural and macrostructural goals are likely to affect treatment outcomes. In terms of context, interventions may include the use of narratives in the form of a retell or generation and the content may be fictional or personal. These narratives may be elicited using materials ranging from a single picture scene to sequences of pictures to wordless picture books. It is clear that each of these factors (i.e., form, content, and elicitation techniques) impact narrative outcomes; however, the exact nature of these impacts remains largely uncertain, especially as it pertains to children with developmental disabilities.

Relative to conversational contexts, narrative contexts elicit more complex microstructural language (e.g., longer mean length of utterance, more complex syntactic forms). This trend is evident in studies directly comparing the two contexts (e.g., Chapman et al., 1998; Miles et al., 2006), as well as across studies (see introduction of Finestack & Abbeduto, 2010). One potential explanation for stronger performance in narrative contexts in comparison to less structured, conversational contexts is that narrative language is frequently elicited using visual supports. Miles et al. (2006) explicitly investigated this explanation through a study that compared personal narratives elicited during conversation with no picture supports and fictional narratives elicited using wordless picture books. The participants in this study included 14 individuals with DS aged 12 to 21 years. Study results indicated stronger performance based on mean length of utterance in the picture-supported narrative context than in the conversational context. Thus, although narrative contexts tend to yield more complex language from children and adolescents with DS, this context advantage appears to be due largely to visual supports incorporated in the narrative elicitation procedures.

When selecting materials and procedures for interventions focused on narrative language, it is important for researchers and interventionists to make decisions based on the study's primary research questions or the child's specific narrative language goals. Typically, researchers and interventionists assume that the more supports provided, the easier the task will be for the individual. Thus, retelling a story is assumed to be easier than generating an original story, and using a time-sequenced set of pictures would provide more support than a single picture display. However, these assumptions must be regarded with caution. For example, in a study of nine individuals with WS ranging in age from 6 to 25 years, Marini and his colleagues (2010) found that at the macrostructure level, the individuals with WS provided less informative and thematic information when narratives were elicited using a 6-picture sequence than when using a single picture scene. These findings highlight the necessity for interventionists to work within the child's or adolescent's zone of proximal development and determine the narrative contexts and elicitation materials and procedures that are best suited for the individual.

Conclusion

Despite a critical shortage of research focused on the narrative language development of children and adolescents with developmental disabilities, as well as narrative interventions for these populations, current evidence clearly indicates that narrative language, both at the microstructural and macrostructural level, is an area of weakness for many individuals with developmental disabilities. For many individuals with developmental disabilities who are verbally expressive, it will be necessary for clinicians to target narrative language skills. Empirical evidence exists that supports the use of interventions that target narrative as well as grammatical language for individuals with developmental disabilities who have relatively strong language abilities. For many individuals with developmental disabilities, it will be necessary for clinicians to include visual cues and supports as part of the intervention program. Additionally,

it is very important for clinicians to consider the abilities of their clients to determine the most appropriate context and elicitation procedures to use with their clients with developmental disabilities. Interventionists should use the five principles presented here as a starting point when designing and implementing intervention programs targeting the narrative skills of children and adolescents with developmental disabilities. Narrative language abilities are important skills for children and adolescents to develop to help ensure social and school success, and to allow for increased independence as adolescents with developmental disabilities transition out of secondary education services and engage in employment opportunities.

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