Retelling stories: Grammatical and lexical measures for identifying monolingual spanish speaking children with specific language impairment (SLI)☆

Alejandra Auza B.[a,*], Mary Towle Harmon[b], Chiharu Murata[c]

[a] *Hospital General Dr. Manuel Gea González, Instituto Mexicano para la Atención del Desarrollo del Niño, A.C., Mexico*
[b] *Northern Arizona University, United States*
[c] *Instituto Nacional de Pediatría, Mexico*

ARTICLE INFO

ABSTRACT

Children with Specific Language Impairment (SLI) have grammatical and lexical difficulties when telling stories. The aim of this work was to explore whether language productivity measures, such as mean length of utterance (MLU), percentage of ungrammatical sentences (%UGS), total number of words (TNW), and number of different words (NDW) produced by young children during a story retell task, can be used to accurately differentiate monolingual Spanish-speaking children with SLI from children with typical language development (TLD). Fifty monolingual Spanish-speaking children between 4; 0 and 6; 11 years were assigned to one of two groups: 25 children with SLI and 25 TLD age-matched peers. A scripted picture book was read to each child and the child was subsequently asked to retell the story using pictures. Story retells were analyzed for MLU, %UGS, TNW, and NDW. Results showed significant differences between groups on all four measures. Children with SLI showed significantly lower MLU, TNW and NDW, and significantly higher %UGS when compared with age-matched peers with TLD. Results suggest that measures of language productivity obtained during story retells may be used to accurately detect differences in language performance and differentiate monolingual Spanish-speaking children with SLI from their typical peers. The findings from this study have clinical implications for assessment and identification of monolingual Spanish-speaking children with language impairments.

1. Introduction

It is well documented that English-speaking children with Specific Language Impairment (SLI) commonly demonstrate deficits in multiple areas of spoken language especially with grammatical morphology, syntax and lexical diversity (e.g., Conti-Ramsden & Jones, 1997; Fujiki, Brinton, & Todd, 1996; Leonard, Miller, & Gerber, 1999; Scott & Windsor, 2000; Swanson, Fey, Mills & Hood, 2005; Watkins, Rice, & Moltz, 1993; Wright & Newhoff, 2001), in the absence of cognitive, motor or sensory deficits (Leonard, 2014). Children with SLI may present with different profiles of difficulties in one or more language areas, such as phonology, semantics, syntax, grammar, and/or pragmatics (Bishop & Leonard, 2000; Kapantzoglou, Restrepo, Gray, & Thompson, 2015). Differences in the profiles might be due to the stages of language acquisition, the severeness, or the persistence of the impairment (Bishop &

Edmundson, 1987). Grammatical difficulties are the main characteristic in preschool and early school-age children, (e.g., Conti-Ramsden, Botting, & Faragher, 2001; Leonard, 2014); however, lexical difficulties might be another aspect of the impairment (Peterson, Pennington, Samuelsson, Byrne, & Olson, 2013). Previously it has been hypothetized that poor vocabulary in children with SLI might be due to poor phonological working memory (e.g. Montgomery, 1995), and poor fast mapping skills (Gray, 2004) making it difficult for children to acquire and use newly encountered words.

Traditionally, children are identified as disordered using one of several comprehensive norm-referenced language measures; unfortunately, these measures often do not adequately differentiate children with true language impairment from children with typically developing language, particularly children from linguistically diverse backgrounds (Granados & Auza, 2012; Gutiérrez-Clellen & Hofstetter, 1994). In an effort to overcome this issue, clinicians often use alternative tools for capturing a child's true language abilities, such as narrative sample analysis.

The current standard for identifying children with language impairment is for practitioners, both private practice and school-based, to administer a battery of measures, which include both formal standardized norm-referenced measures and informal measures. Results from norm-referenced measures are most commonly used to determine eligibility; however, there are well-documented limitations to administering norm-referenced measures to children whose primary language is not English. A number of researchers (e.g. Battle, 2002; Laing & Kamhi, 2003; Roseberry-McKibbin, 1994; Sanchez, 2006; Stow & Dodd, 2003) have explicitly discussed the various biases associated with administering norm-referenced tests to culturally and linguistically diverse children. Further, Gutiérrez-Clellen and Hofstetter (1994) and Granados and Auza (2012) have highlighted the concern that few norm-referenced measures contain the lexical and grammatical items that precisely focus on the vulnerabilities of Spanish-speaking children with SLI. For example, many tests often lack specific questions targeting forms that are grammatical markers of language deficits. Specifically, in the Spanish language, children tend to omit or substitute the use of articles (e.g. Anderson, Marquez, & Grinstead, 2009; Auza & Morgan, 2013a; Bedore and Leonard, 2001, 2005; Morgan, Restrepo, & Auza, 2009; Sanz-Torrent, Serrat, Andreu, & Serra, 2008), clitics – both direct object and indirect object pronouns, (e.g. Gutiérrez-Clellen, Restrepo, & Simón-Cereijido, 2006; Jacobson & Schwartz, 2002; Morgan et al., 2013; Simón-Cereijido & Gutiérrez-Clellen, 2007); prepositions (Auza & Morgan, 2013b; Restrepo & Kruth, 2000; Sanz-Torrent, Badia, & Serra, 2007), and derivational morphemes, at least in agentive (i.e. occupation) and adjectival morphemes (e.g. Auza & Roldán, 2003; Morgan, Restrepo, & Auza, 2009). The limitations with norm-referenced measures are problematic for many Spanish-speaking children, especially when considering the heterogeneous nature of linguistic vulnerabilities in this group (Morgan et al., 2009, 2013); yet, only a small sampling of these grammatical markers are commonly present in norm-referenced assessments used to identify children with SLI.

Given the limitations of norm-referenced tests, the inclusion of informal, functional language measures is becoming a part of many assessment batteries. One assessment tool commonly used by clinicians is narrative sample analysis. Narratives allow children to express their language in creative and dynamic ways through telling about an event or story (Fiestas & Peña, 2004). When telling a story, children with typical language development (TLD) use syntactically and semantically complex units, with abstract and imaginative thinking. They also incorporate socially appropriate terminology while maintaining organization (Joffe, Cruice, & Chiat, 2008; Justice et al., 2006; Schoenbrodt, Kerins, & Gesell, 2003). Narrating stories requires the child to take a different perspective, to string coherently a series of events, and to adjust to the communicative needs of the listener (Wong & Johnston, 2004). Even though the demands of narrating a story or an event may present cognitive challenges for many children, narrations are expressed at an early age and cross many linguistic and cultural boundaries (McCabe & Bliss, 2003; McCabe & Rollins, 1994; McGregor, 2000).

The narratives of children with SLI are generally shorter and overall tend to have limited lexical diversity, poor grammatical complexity and fewer narrative episodes (Kaderavek & Sulzby, 2000; Scott & Windsor, 2000; Swanson et al., 2005; Wright & Newhoff, 2001). The narratives produced by Spanish-speaking children with SLI also contain utterances with errors of omissions and/or substitutions of a wide variety of morpho-syntactic items (Gutiérrez-Clellen, Restrepo, Bedore, Peña, & Anderson, 2000; Restrepo & Silverman, 2001; Restrepo, 1998; Simón-Cereijido & Gutiérrez-Clellen, 2007). For example, it is common for a child with SLI to produce a sentence such as *El rana se fue a* casa/The-Masculine Definite Article frog went a*(omission)-Preposition- home* where the masculine article *El* substitutes the feminine article *La*, and the preposition *a* "to" is omitted.

Because narratives are highly variable, one functional approach to investigating a child's language is using a story retell. This method allows children to generate a story after listening to a scripted story (Reuterskiöld-Wagner, Nettelbladt, Sahlén, & Nilholm, 2000; Spencer & Slocum, 2010). Retells control for the topic, content, length, and grammatical constructions in the script, but can also provide clues as to how this information is recovered and incorporated by the children using their own lexical and morpho-syntactic resources (Hayward, Gillam, & Lien, 2007). Using a scripted story retell also allows for a more straight-forward analysis of the child's language. When analyzing a child's language performance following story retell, researchers have used a range of language productivity measures such as the Mean Length of Utterances (MLU) to investigate the morphosyntax competencies of the child (Kaderavek & Sulzby, 2000; McGregor, 2000; Petersen, Gillam, Spencer, & Gillam, 2010). Previous studies have confirmed relationships between the size of the vocabulary and complex morphosyntax competencies, but also between the number of different words and different grammatical markers (Marchman, Martínez-Sussmann, & Dale, 2004). However, some researchers have suggested that measures such as the MLU, are not trustworthy measures for capturing a full range of linguistic abilities (Johnston & Kamhi, 1984; Klee, Schaffer, May, Membrino, & Mougey, 1989; Scarborough, Wyckoff, & Davidson, 1986). However, studies conducted with Spanish-speaking children have shown that the combination of MLU and the percentage of ungrammatical sentences (% UGS) results in greater sensitivity for identifying grammatical problems than norm-referenced measures (Gutiérrez-Clellen et al., 2006; Gutiérrez-Clellen et al., 2000; Restrepo & Silverman, 2001; Simón-Cereijido & Gutiérrez-Clellen, 2007). It has also been noted that the total number of words (TNW) and the number of different words (NDW) can help differentiate children with SLI from children with TLD, due to the strong relationship between lexical knowledge and narrative ability (Heilmann, Miller, Nockerts, &