



The acquisition of different classes of words in Spanish children with Down syndrome



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ABSTRACT

Purpose: The primary aim of this study was to analyze the acquisition of different classes of words in Spanish-speaking children with Down syndrome (DS), with special emphasis on nouns and verbs. A second objective was to compare the results obtained with those reported by Checa et al. (2016), who used a different measure to study vocabulary composition.

Method: We studied 108 children with DS and 108 children with typical development (TD), with mental ages between 9 and 29 months (DS $M = 21;26$ months;days, TD $M = 20;23$) and chronological ages between 8;24 and 68;19 months;days (mean = 41;11 and 20;19 for DS and TD, respectively). Children were matched individually for size of productive vocabulary and gender. Data were gathered using the MacArthur-Bates CDIs, adapted to the profile of children with DS (the CDI-Down). Relative proportions were used as the measure of vocabulary.

Results: The results differed from those obtained by Checa et al. (2016) when using absolute proportions to examine vocabulary composition. The most significant difference was the trend among children with DS to produce fewer verbs and closed-class words (articles, prepositions, pronouns, conjunctions, and auxiliaries). There were no differences in the production of nouns and social words.

Conclusions: The tendency of children with DS to produce fewer verbs and closed-class words could be due to difficulties with morphology and syntax. This underlines the importance of morphosyntactic skills for learning these classes of words. The methodological and clinical implications of the results are discussed.

1. Introduction

Down syndrome (DS) is the most common, non-inherited genetic cause of intellectual disability, and language is among the most impaired domains of functioning. In recent years, several studies have examined the lexical development of people with DS. Although research on this topic shows a number of inconsistencies (see reviews by Galeote, Soto, Checa, Gómez, & Lamela, 2008; Galeote, Sebastián, Checa, Rey, & Soto, 2011), the majority of studies have found that vocabulary is a strong point in individuals with DS, as compared with their morphosyntactic abilities. However, few studies have investigated their acquisition of different classes of words: nouns, verbs, social words (i.e., words that have a social and pragmatic function), and grammatical or closed-class words (i.e., articles, prepositions, pronouns, conjunctions, and auxiliaries).

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The order in which nouns and verbs are acquired by children is a question that has been the subject of intense debate in recent decades. The study of noun and verb acquisition in Spanish is of considerable interest in the context of this debate, due to the morphological and syntactic structure of this language. However, this topic has not been the subject of much research in Spanish, and, to the best of our knowledge, no studies in this respect have been conducted with children with DS. Consequently, our main aim here was to analyze the acquisition of different classes of words in Spanish-speaking children with DS, focusing especially on the acquisition of nouns and verbs. The instrument we used to measure vocabulary was an adaptation of the MacArthur-Bates Communicative Development Inventories (CDIs) to the language development profile of children with DS (CDI-Down; see Instruments section).

A further objective was to compare the results obtained with those reported by [Checa, Galeote, and Soto \(2016\)](#) when using the same instrument but employing a different measure of vocabulary to the one we considered here. These authors analyzed vocabulary composition in a large sample of Spanish-speaking children with DS and their peers with typical development (TD), using the CDI-Down and taking as their measure of vocabulary the absolute proportions of each class of words (i.e., the percentage of nouns, predicates, etc. produced by each child in relation to his/her vocabulary size). However, research on the acquisition of nouns and verbs has drawn attention to a problem with the CDIs, namely that nouns are over-represented with respect to the other classes of words ([Bornstein et al., 2004](#); [Pine, Lieven, & Rowland, 1996](#)). In order to avoid this problem, these authors suggest that vocabulary should be measured in terms of relative proportions (e.g., the percentage of nouns in relation to the total number of nouns that appear in the CDIs). Consequently, in the present study we analyzed, in the same sample of participants that was studied by [Checa et al. \(2016\)](#), the order in which different classes of words were learned, but using relative proportions as the measure of vocabulary. This approach enabled us to compare the results obtained through the two measures (absolute vs. relative proportions), and also to consider the theoretical and clinical implications of any differences.

Studying the acquisition of different classes of words is important for both theory and practice. From the theoretical point of view, research of this kind may shed light on the processes and mechanisms (general vs. language-specific) that children use when learning words ([Checa et al., 2016](#)). Moreover, people with DS appear to have difficulties acquiring certain classes of words, mainly closed-class words. The study of verb acquisition is also relevant to an understanding of the morphosyntactic difficulties shown by children with DS, since verbs are essential to sentence formation. Thus, studying their acquisition of different word classes could help to identify when such difficulties emerge and to determine the extent to which their language deviates from — or is delayed with respect to — that of children with TD. From the practical point of view, understanding the processes and mechanisms involved would help to improve assessment methods and in the design of intervention programs that are more tailored to children's educational needs.

1.1. *The acquisition of nouns and verbs: theoretical explanations and methodological confounds*

The study of noun and verb acquisition has generated a long and intense debate focused around the various theoretical explanations and several methodological problems (for an updated summary of this debate, see [Waxman et al., 2013](#)). From the theoretical point of view, there are two main accounts: one focuses on perceptual and cognitive differences in the concepts underlying nouns and verbs, while the other is centered on the type of input that children receive depending on the structural features of the language being learned and/or the quality of their interaction with caregivers. These accounts reflect the classical debate over the extent to which language development is shaped by universal/general features of human language as opposed to specific features of the particular language that is being acquired. From the methodological point of view the discussion has centered predominantly on the methods used to collect data.

1.1.1. *Theoretical explanations*

In a pioneering study, [Gentner \(1982\)](#) found that nouns constituted the largest and earliest class of words that were acquired in languages of quite different characteristics (English, German, Japanese, etc.). As a result, she proposed the natural partitions hypothesis ([Gentner, 1982](#)): nouns are acquired before verbs in early vocabulary because nouns refer to concrete objects that are relatively permanent and tangible, whereas verbs reflect relational meaning (the relationship among objects); moreover, actions are fleeting and are performed by different actors. From this perspective, the early advantage for learning nouns over verbs would be a universal feature of human language, the result of fundamental differences in the concepts underlying nouns and verbs rather than of the structural and distributional properties of the native language.

Various studies supported this universalist view, with a noun bias being demonstrated in a number of languages including English ([Bates et al., 1994](#); [Fenson et al., 1994](#)), Spanish ([Jackson-Maldonado, Thal, Marchman, Bates, & Gutiérrez-Clellen, 1993](#)), French ([Bassano, 2000](#)), and Dutch ([De Houwer & Gillis, 1998](#)), as well as in studies comparing several languages ([Bornstein et al., 2004](#), covering seven languages: Spanish, American English, Dutch, French, Hebrew, Italian, and Korean; [Caselli et al., 1995](#), and [Caselli, Casadio, & Bates, 1999](#), for English and Italian).

Studies conducted primarily in Asian languages, such as Korean and Mandarin [see, also, studies of the Mayan languages Tzeltal ([Brown, 1998](#)) and Tzotzil ([De León, 1999](#))], appeared to challenge this proposal, since learners of these languages acquired a proportion of verbs that was equal to or greater than that of nouns ([Choi & Gopnik, 1995](#); [Choi, 2000](#); [Gopnik & Choi, 1995](#); [Tardif, 1996](#); [Tardif, Shatz, & Naigles, 1997](#)). These results were interpreted as reflecting the structural features of these languages. Korean is an SOV (subject-object-verb) language, and therefore verbs occupy a salient position. The subject and object are also often omitted, which favors a higher frequency of verbs in the input that children receive. Mandarin, like English, is a SVO language, but the subject and object can be omitted and it allows more word order variation than does English. These findings suggest that the early noun advantage might be a consequence of the particular characteristics of the language being learned: noun-friendly vs. verb-friendly

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