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Original Article

Syntactic Awareness Tests: Exploring their Discriminant Validity in Primary School Students

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ABSTRACT

This article reports the results of a pilot study aimed at determining the discriminant power of seven tasks to assess syntactic awareness in first and second-cycle elementary school students. The participants were 39 students from 2nd to 8th grade at a private-subsidized school. The outcomes show that four of the seven tests can detect statistically significant variations in students' performance in syntactic awareness tasks, which makes it possible to describe a specific developmental pattern of metasyntactic skills at the analyzed school levels. These results provide relevant information on the usefulness of some tests over others to adequately evaluate syntactic awareness in schoolchildren. At the same time, they reveal methodological aspects that should be considered when assessing syntactic awareness. Finally, the methodological and educational implications that derive from this study are discussed.

Keywords:
Assessment; Syntactic Awareness; Schoolchildren; Discriminant Power; Developmental Pattern

Pruebas de conciencia sintáctica: explorando su validez discriminante en escolares de educación primaria

RESUMEN

El presente artículo reporta los resultados de un estudio piloto que tuvo como objetivo principal determinar el poder discriminante de siete tareas para evaluar conciencia sintáctica en estudiantes de primer y segundo ciclo de enseñanza básica. En el estudio, participaron 39 estudiantes de 2° a 8° año de enseñanza básica pertenecientes a una escuela particular-subvencionada. Los resultados revelan que cuatro de las siete pruebas administradas permiten detectar variaciones estadísticamente significativas en el desempeño de escolares en tareas de conciencia sintáctica, las que permitirían informar de un patrón evolutivo específico de la habilidad metasintáctica en los niveles escolares evaluados. Los hallazgos proporcionan información relevante sobre la pertinencia de algunas pruebas por sobre otras para evaluar de manera apropiada la conciencia sintáctica en escolares. A su vez, evidencian aspectos metodológicos que se deben considerar en la evaluación de la conciencia sintáctica. Se discuten las implicancias metodológicas y educativas que pueden derivarse de este estudio.

Palabras clave:
Evaluación; Conciencia Sintáctica; Escolares; Poder Discriminante; Patrón Evolutivo

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INTRODUCTION

Syntactic awareness (SA) is a cognitive skill that enables conscious and deliberate access to the syntactic elements of spoken or written language. Specifically, SA allows people to manipulate the components present in the grammatical structure of a linguistic stimulus, thereby supporting the development of skills related to literacy acquisition (Andrés et al., 2010). Additionally, it makes it possible to detect errors in the grammatical structure of linguistic stimuli, alerting when they do not conform to the expected pattern of a particular language (Oakhill & Cain, 2005). While it is possible to consciously access knowledge of grammatical structures and intentionally control them, most of the syntactic and morphosyntactic processing, particularly in written language, occurs automatically. This automaticity frees cognitive resources that can be used to engage in more complex activities related to information integration and comprehension (Cuetos, 2008). Evidence shows the impact of SA on comprehension as a predictive factor, even after controlling for variables such as age, gender, oral vocabulary, and word reading skills, among others. However, few studies have explored the development of SA in monolingual Spanish-speaking children (Simpson et al., 2020).

Syntactic skills rely on both syntactic knowledge (linguistic knowledge) and SA (metalinguistic knowledge) (Brimo et al., 2017; Cain, 2007). These skills are distinguished by the implicit-explicit or automatic-reflexive dichotomy, respectively (Gaux & Gombert, 1999; Gombert, 1992; Karmiloff-Smith, 1992). This distinction is not superfluous, as metalinguistic behavior inherently involves conscious cognitive processes that require deliberate control over the units of language or their usage (Gombert, 1992).

The age at which metasyntactic skills emerge remains a subject of debate. For instance, spontaneous corrections in speech, which emerge between ages 2 and 3, are considered empirical evidence of the presence of metalinguistic skills. However, these corrections are thought to be more closely related to the child's communicative intent and control over meaning than to the voluntary manipulation of formal aspects of language.

Regarding the development of language awareness or metalinguistic skills, three phases have been proposed: the first corresponds to the automatic use of language; the second to real awareness, entailing a gradual process in which the child can reflect on the priorities of language, although knowledge of its units remains implicit; and finally, total awareness, which enables the deliberate manipulation of language units through metalinguistic skills (García & González, 2008). However, there is no consensus on the developmental pattern of metalinguistic skills in Spanish-speaking students. Therefore, there is a need to develop research on this aspect and explore effective assessment methods for such skills. Furthermore, evaluating SA assessment could provide valuable insights into an individual's ability to apply deliberate grammatical rules in broader and more complex linguistic contexts.

Syntactic Awareness Assessment

syntactic awareness (SA) assessment has become a challenge due to the diversity of tasks used to measure it and the variety of syntactic structures in the stimuli employed. Additionally, it requires the use of working memory and processing strategies that are not only syntactic but also semantic (Cain, 2007; Navarro & Rodríguez, 2014). Furthermore, in most studies, the evaluation of syntactic awareness depends on the words included in the linguistic corpus, revealing that all syntactic awareness tests are, in fact, tests of semantic awareness as well (Gombert, 1992; Mimeau et al., 2019).

Some of the traditional tasks used to assess SA are: grammatical structuring, sentence completion, grammaticality judgment, sentence ordering, detection and correction of ungrammaticalities or grammatical errors, answering questions that require attention to syntactic cues, and questionnaires (Andrés et al., 2010; Cain, 2007; Layton et al., 1998; Nation & Snowling, 2000). The most frequent tasks, in order of difficulty, are: judgment, correction, localization, repetition, completion, explanation, and replication. This order reflects an increase in the cognitive and processing requirements of the tasks. Thus, judgment and correction tasks are the least demanding, as they involve identifying or correcting ungrammaticalities, a skill observed early in children and performed somewhat automatically. In contrast, explaining and replicating errors is more complex, as explaining requires recognizing, locating, and explaining why a sentence is grammatically incorrect. Additionally, replicating requires the ability to manipulate grammatical rules and use them creatively. The results of these tasks vary depending on the type of ungrammaticality tested and the morphosyntactic and syntactic aspects considered (Gaux & Gombert, 1999). The tasks commonly used to assess SA are briefly described below.

Grammaticality Judgment

This task assesses the ability to detect ungrammaticalities (Correa, 2004). In general, children tend to evaluate a sentence as incorrect based on its semantic interpretation or the plausibility of the situation described in it. This suggests that, despite correctly

performing the task, grammaticality judgments may be more influenced by the situation's acceptability or unacceptability, rather than by syntactic aspects. This highlights the impact of semantic and pragmatic factors. Evidence indicates that between the ages of 6 and 7, grammaticality judgments based on meaning predominate (Gaux & Gombert, 1999; Hakes, 1980; Tunmer & Grieve, 1984), reflecting the dominance of semantic analysis over grammatical analysis. This is the main weakness of the grammaticality judgment task, as it does not effectively capture the ability to deliberately and consciously manipulate syntactic information (Gaux & Gombert, 1999).

Grammatical Correction

This task assesses the ability to detect syntactic errors and correct them, sometimes through reformulations (Gaux & Gombert, 1999). In general, syntactic corrections are considered evidence of metalinguistic skills, although the self-correction produced by young children between the ages of 5-6 and 6-7 is considered a spontaneous correction, without conscious control (Bialystok & Bouchard Ryan, 1985; Gaux & Gombert, 1999). However, correction tasks generally require a higher level of syntactic awareness than that needed for grammaticality judgment, especially when the syntactic error is noticeable and causes a semantic break. A natural tendency to correct phrases has been observed among children, even the youngest, who are guided by form and/or content criteria (Bialystok & Bouchard Ryan, 1985). Adequate performance in this task might depend primarily on semantic rather than syntactic processing, which could represent a limitation of the task.

Error Localization

This task assesses the ability to locate ungrammaticalities in sentences (Smith-Lock & Rubin, 1993). These tasks aim to determine whether corrections are genuinely derived from the use of metalinguistic skills by asking the participant to indicate the location or reason for the ungrammaticality (Correa, 2004; Gaux & Gombert, 1999; Smith-Lock & Rubin, 1993). However, the results are inconclusive, as it is difficult to determine whether performance on this task is due to metalinguistic skills or the perceived oddness of the sentence (Correa, 2004). Additionally, the requirement to articulate the location or reason for the ungrammaticality is also subject to scrutiny, as a lack of verbalization does not necessarily indicate a low level of SA (Green & Hecht, 1992; Sorace, 1985). In other words, there is a gap between the ability to intentionally use linguistic knowledge and the ability to verbalize it. Moreover, verbalizing a rule does not necessarily imply the intentional manipulation of linguistic knowledge (Correa, 2004).

Explanation of Grammatical Errors

This task evaluates the ability to provide a brief explanation of why a sentence is ungrammatical (Hakes, 1980). One limitation is that a lack of verbalization of the grammatical rule does not necessarily indicate an inability to correctly apply it. Indeed, formal explanations of grammatical rules are rare (Chaney, 1992; Hakes, 1980) even when students have repeatedly received metalinguistic information (Sorace, 1985), which is partly determined by exposure to formal language learning. In fact, a low level of mastery of grammatical vocabulary is a limitation for the verbalization required in this task.

Completion

This task assesses the ability to complete a sentence or text with missing words (Browne Rego & Bryant, 1993; Leal & Roazzi, 1999; Nunes et al., 1997; Tunmer et al., 1987). According to Correa (2004), the completion task does not allow to differentiate between the use of metasyntactic skills and semantic aspects, since, in order to complete the missing item—even when pseudowords are used—the child needs to access the semantic context. Therefore, it is not possible to determine that performance on this task involves the intentional use and manipulation of rules, as execution may rely on syntactic and/or semantic information, which are difficult to dissociate (Correa, 2004).

Replication of Grammatical Errors

This task assesses the ability to identify ungrammatical constructions and replicate the identified error in otherwise grammatical sentences. The paradigm requires participants to recognize the nature of the ungrammaticality and use explicit SA, without necessarily verbalizing the rule (Gaux & Gombert, 1999). How the stimulus is presented is critical for the validity of the results. If stimuli are presented solely in oral form, working memory could account for differences among participants (Correa, 2004).

Identification of Grammatical Function

This task evaluates the ability to use knowledge of grammatical categories (e.g., subject, verb, complement, determiner, and adjective) to identify the grammatical functions of words within a sentence. Various methods have been employed for this assessment: listening to or reading sentences containing functionally ambiguous words and producing a new sentence using the word in its alternative grammatical function; determining whether two words share the same grammatical function or belong to different categories; or employing a word within a syntactically congruent or incongruent initial phrase.

However, this task may rely on participants' semantic knowledge and, as such, shares similar limitations to error correction tasks (Gaux & Gombert, 1999).

In summary, assessing syntactic skills—particularly those that deliberately and intentionally focus on formal aspects of language—is complex and challenging. Consequently, this pilot study aimed to analyze the discriminative power of seven classical tasks commonly used to assess syntactic awareness in primary school students.

METHODOLOGY

Study Design

This is a descriptive pilot study carried out to determine the discriminative capacity of seven tasks requiring the application of metasyntactic skills by elementary school students.

Participants

The study involved 39 students enrolled in the 2nd, 4th, 6th, and 8th grades of elementary education at a school in Concepción, affiliated with the Local Public Education Service (*Servicio Local de Educación Pública*). A non-probabilistic convenience sampling method was used. Each grade level included 10 students (5 female, 5 male), except for the 4th-grade group, which consisted of 9 students (5 female, 4 male). All participants provided informed consent forms signed by their parents and their own assent, expressing their willingness to participate in the assessments.

Task Design Procedure

A normative study of subjective familiarity (Jiménez, 1999) was conducted to select highly familiar lexical items for the age group, which represented the validation sample for the SA tasks. A list of words was extracted from the ESPAL database (Duchon et al., 2013), which includes lexical items frequently used in Spanish in everyday verbal interactions. From this database, 280 words with high frequency and familiarity ratings were selected and divided into two lists of 140 words each (List A and List B). A total of 142 Chilean students, attending the same grade levels as those in the present study, scored the words using a Likert-scale questionnaire (see Figure 1). The results of a *t*-test revealed no statistically significant differences between the lists ($p = 0.238$). Additionally, the Mann-Whitney U and Wilcoxon non-parametric tests identified five outliers (1.77% of the total sample), which were excluded from the final dataset.

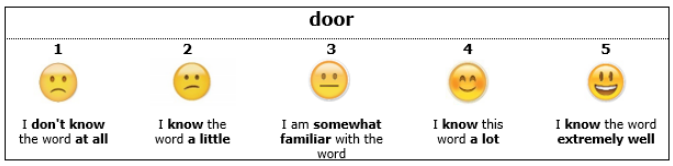

Figure 1. Likert scale used in normative study on subjective familiarity.

Tasks

Seven tasks were developed, drawing from the existing literature on SA assessment (Andrés et al., 2010; Correa, 2004; Gaux & Gombert, 1999; Navarro & Rodríguez, 2014). These tasks incorporated the word selection process described in the previously conducted normative study. During the design of each task, variables such as sentence length, syntactic complexity, reversibility, subjective familiarity, conciseness, and lexical imaginability were carefully controlled. Each task began with specific instructions and two or three trial stimuli as examples. Below is a detailed description of each task.

Grammaticality Judgment

This task measures the ability to determine whether a sentence is grammatical or ungrammatical. It consists of 32 stimuli, and students must indicate whether the sentence they hear is correct or incorrect. The maximum score is 32 points. The instructions provided were: *"Listen carefully. I am going to say some sentences; some of them are correct, and others are not. You need to respond with a YES if the sentence I say is correct, and with a NO if it is incorrect. For example, if I say: '*El niño jugó con *las* juguetes*,' you should say NO, because it is incorrect."*

Identification of Grammatical Errors

This task evaluates the ability to identify and locate grammatical errors. It includes 20 stimuli, and students must name the word(s) containing the error. The instructions provided were: *"Listen carefully. You are going to hear sentences that are incorrect, and you need to tell me which words contain the error by naming them. For example, if I say: 'The girl played with doll the,' you should say 'doll' and 'the,' because those are the words that are incorrect."*

Correction of Grammatical Errors

This task assesses the ability to identify and correct grammatical errors in a sentence. It consists of 16 stimuli. The instructions provided were: *"Listen carefully. I am going to say some sentences that are incorrect, and you need to correct them by*

repeating the sentence correctly. For example, if I say: 'The girl played with doll the', you should say: 'The girl played with the doll.'"

Explanation of Grammatical Errors

This task evaluates the ability to identify and explain the nature of a grammatical error. It consists of 20 items. The instructions provided were: *"Now, you will listen to sentences that contain errors, and you will need to explain what the error is and why it is incorrect. For example, if I say: 'son The called his mom,' you should tell me there is an error in the word order because it should be: 'The son called his mom.'"*

Replication of Grammatical Errors

This task measures the ability to identify a grammatical error and reproduce the same type of error in a different sentence. It consists of 24 stimuli. The instructions provided were: *"I am going to say a sentence that has a mistake, and you need to reproduce that same mistake in a new sentence that is otherwise correct. For example, if I say: 'son The called his mom,' what is the error? Then, if I give you the sentence: 'The boy yelled at his sister,' how would it look if you make it incorrect using the same type of error?"*

Identification of Grammatical Function

This task assesses the ability to identify grammatical functions, such as subject, verb, determiner, direct object, and adjective. It includes 15 stimuli. The instructions provided were: *"You will see and hear sentences, and you need to underline the phrase or word that has the same function or grammatical category as the underlined word in the model sentence."* For example, if the task is to identify the subject, a model sentence is presented both visually and acoustically, such as: *'The son called his mom.'* The student then receives a stimulus sentence like: *'The woman looked at the man,'* and must underline the word serving as the subject (in this case, *'The woman'*).

Sentence Completion

This task measures the ability to complete sentences using the cloze model. It consists of 20 stimuli, including function and content words. The instructions provided were: *"I am going to say a sentence that is missing a word. When I get to the missing word, I will say 'beep,' and you need to think of a word to complete the sentence. For example, if I say, 'The moon shines in the ''beep''' (pause and repeat), I want you to say, 'sky,' etc. OK, let's try another sentence."*

Procedure

Before beginning the study, authorization was obtained from parents via signed informed consent, and assent was obtained from the students per the guidelines of the Ethics Committee of Universidad de Concepción. The tasks were administered individually in three 15-minute sessions. In the first session, the grammaticality judgment, error localization, and error correction tasks were administered. The explanation and replication of grammatical errors tasks were completed during the second session, and the third session included the grammatical function identification and sentence completion tasks.

The stimuli were presented in a recording using a female voice, except for the replication and identification tasks, which were presented in both oral and written modalities. Participants responded orally to each stimulus, and the evaluator recorded their responses in writing. Each correct response was scored with 1 point, and incorrect responses received 0 points.

RESULTS

The descriptive statistics (mean and standard deviation) of the SA evaluation tasks administered to students are presented below. To identify potential statistically significant differences between tasks, the results of a one-way analysis of variance (ANOVA) are reported. Lastly, we present the results of the discriminant analysis to evaluate the degree of separation between groups who completed the different SA evaluation tasks.

Descriptive Analysis of Tasks

Table 1 shows the descriptive statistics for each syntactic awareness evaluation task across the different groups.

Table 1. Mean and Standard Deviation in the SA tasks.

Task	Elementary School Level			
	Second Mean (SD)	Fourth Mean (SD)	Sixth Mean (SD)	Eighth Mean (SD)
Judgment	30 (1.99)	30.44 (0.73)	29.9 (0.88)	30 (1.7)
Localization	13.2 (2.15)	14.44 (1.24)	15 (1.33)	15 (0.94)
Completion	11.8 (4)	13.56 (4.67)	18.7 (1.25)	17.3 (2.67)
Correction	14.8 (1.03)	15.67 (0.71)	15.8 (0.42)	16 (0)
Explanation	7.5 (6.75)	13.33 (2.18)	14.4 (1.35)	14.9 (0.88)
Replication	0 (0)	2.44 (3.58)	6.3 (1.89)	8.9 (3.54)
Function	11 (1.56)	10.33 (1.58)	12.6 (1.17)	14.9 (0.32)

Note: Tasks reported are: Grammatical judgment, grammatical error localization, error explanation, error correction, phrase completion, error replication, and identification of grammatical function.

Task Variance Analysis

The assumptions of normality and homoscedasticity were tested using the Shapiro-Wilk and Levene's tests, respectively (Table 2). A one-way analysis of variance (ANOVA) was conducted using the Kruskal-Wallis test. The analysis shows that there are statistically significant differences between four of the seven tasks evaluated: the Sentence Completion Task ($p < 0.00013$), the Grammatical Error Correction Task ($p < 0.00348$), the Error Replication Task ($p < 0.001$), and the Grammatical Function Identification Task ($p < 0.001$).

Table 2. Shapiro-Wilk Normality Test and Levene's Homogeneity of Variance Test Values for the Tests Applied.

Tasks	Normality	Homoscedasticity
Judgment	0.0001658 *	0.3881
Localization	0.0001247 *	0.06191
Completion	0.0006149 *	0.2242
Correction	6.474x10-9 *	0.0099 *
Explanation	1.203x10-7 *	5.904x10-6 *
Replication	0.0001007 *	0.08012
Function	0.006828 *	0.004382 *

Note. Values with a * do not meet assumptions for $p<0.05$.

The Dunn-Bonferroni correction was applied to control the overall Type I error rate due to multiple comparisons. Figures 2, 3, 4, and 5 show the estimates of statistically significant differences in each test's variance by grade level. The tests in which statistically significant differences were detected are the Sentence Completion Test (TOT_COM), Grammatical Error Correction Test (TOT_COR), Error Replication Test (TOT_REP), and Grammatical Function Identification Test (TOT_FUN).

The adjusted *p*-values for the Sentence Completion Task were significant only from 2nd to 6th grade ($p < .000$), from 2nd to 8th grade ($p < .010$), and from 4th to 6th grade ($p < .017$), but not between 2nd and 4th, 4th and 8th, or 6th and 8th grades (see Figure 2).

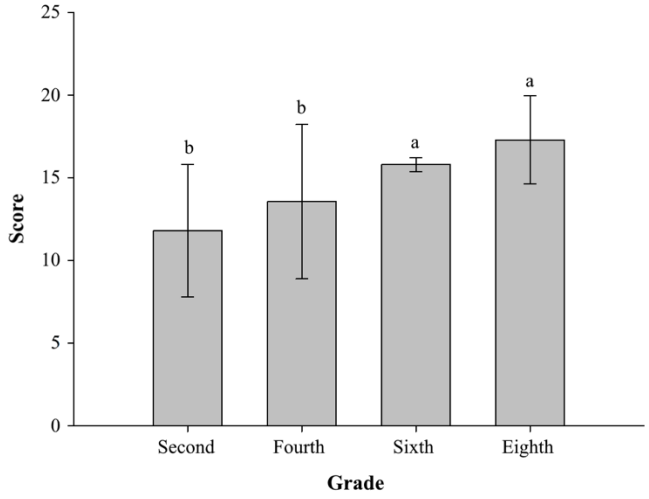

Figure 2. Scores of the Completion text per grade. Bars indicate the mean ± standard deviation. Different letters indicate significant differences according to Dunn, for p<0.05.

The adjusted *p*-values for the Grammatical Error Correction Task were significant only from 2nd to 6th grade ($p < .044$) and from 2nd to 8th grade ($p < .002$). However, they were not statistically significant between 2nd and 4th, 4th and 6th, or between 6th and 8th grades (Figure 3).

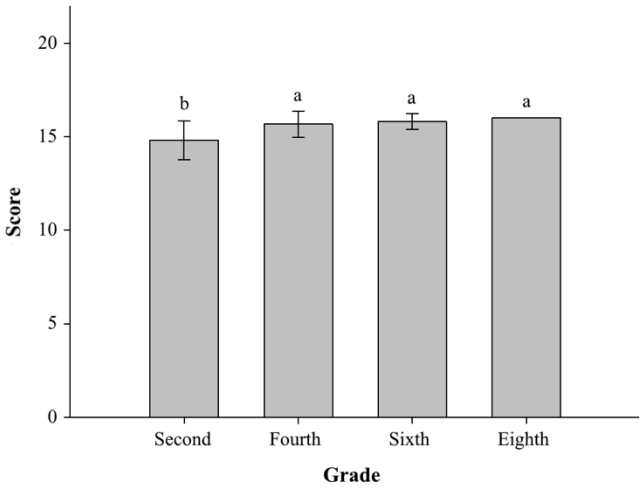

Figure 3. Scores for the Grammatical Error Correction Test by grade. The bar indicates the mean ± standard deviation. Different letters indicate significant differences according to Dunn for $p < 0.05$.

The adjusted *p*-values for the Grammatical Error Replication Task were significant only from 2nd to 6th grade ($p < .002$), from 2nd to 8th grade ($p < .000$), and from 4th to 8th grade ($p < .013$), but were not statistically significant between 2nd and 4th, 4th and 6th, or between 6th and 8th grades (see Figure 4).

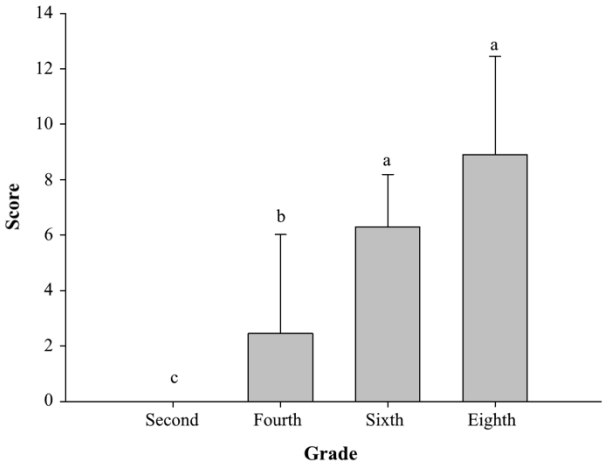

Figure 4. Scores for the Error Replication Test by grade. The bar indicates the mean + standard deviation. Different letters indicate significant differences according to Dunn for $p < 0.05$.

The adjusted *p*-values for the Grammatical Error Identification Task were not generally different from those of the other tasks. However, significant differences were observed only from 2nd to 8th grade ($p < .000$) and from 4th to 8th grade ($p < .000$), and not between 2nd and 4th, 4th and 6th, or between 6th and 8th grades. See Figure 5 for the differences by grade.

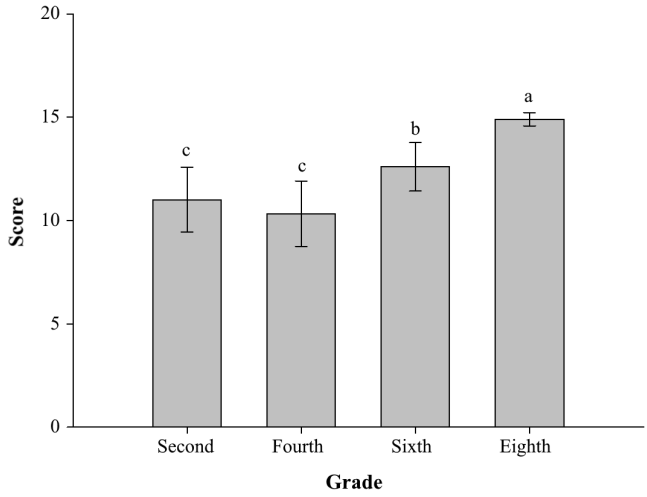

Figure 5. Scores for the Grammatical Function Identification Test by grade. The bar indicates the mean ± standard deviation. Different letters indicate significant differences according to Dunn for $p < 0.05$.

Discriminant Analysis

To assess the separation between grades, a discriminant analysis was conducted, providing an equation that indicates the maximum separation or discrimination between groups. According to this analysis, three discriminant functions (LD) were found, which explained 80.4%, 17.8%, and 1.8% of the variance between the grades. Based on the LD1 coefficients, the following discriminant function is obtained:

$$LD1 = -0.217xTOT\_JU - 0.316xTOT\_LO + 0.069xTOT\_COM - 0.176xTOT\_COR - 0.027xTOT\_EX - 0.027xTOT\_REP + 0.915xTOT\_FUN$$

However, the separation between groups according to LD1 (Figure 6) shows that there is overlap between grades, especially for sixth grade. On the other hand, a clear differentiation is observed between the fourth and eighth-grade groups, as well as between the second and eighth-grade groups.

Similarly, the score plot of the discriminant analysis shown in Figure 7 reveals that, although the groups are separated, there is overlap between the sixth and eighth grades, indicating that they have a lower degree of separation.

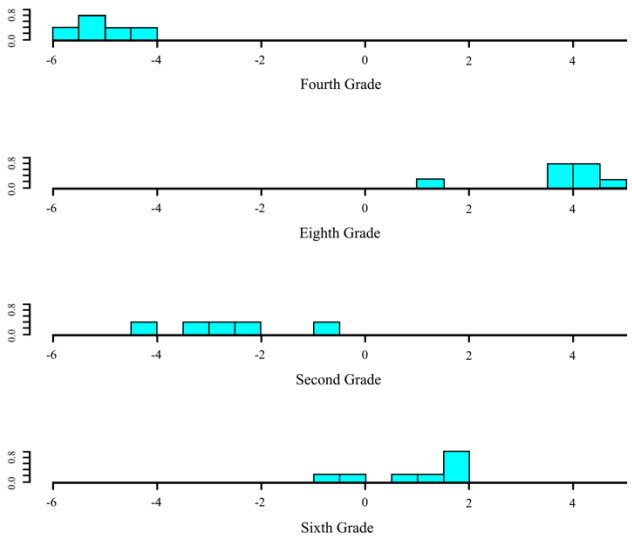

Figure 6. Separation by grade according to discriminant analyses.

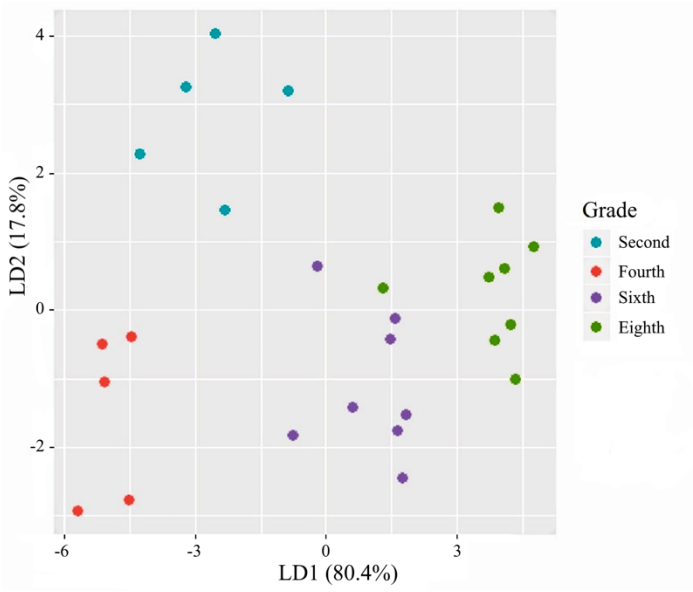

Figure 7. Score plot for discriminant analysis, distinguishing between groups for LD1 and LD2.

DISCUSSION

This study aimed to analyze the discriminative power of seven tests commonly used to assess syntactic awareness (SA) in school-aged children. This is to provide valid instruments for Chilean Spanish through a broader study, which is relevant for communication and cognition, and especially for literacy skills.

The analyses showed that four out of the seven tests are effective in assessing SA and notably distinguishing differences in performance across various grade levels. The tasks that effectively measure real variations in the ability to mentally manipulate the structural elements of sentences are: the Sentence Completion Task, the Grammatical Error Correction Task, the Grammatical Error Replication Task, and the Grammatical Function Identification Task. These tests would be more effective tools for assessing and distinguishing levels of syntactic awareness in children from 2nd to 8th grade compared to tasks such as grammaticality judgment, error localization, and error explanation.

These results are consistent with those reported by Correa (2004) and Goodwin et al. (2021). The former study showed that tasks traditionally used to measure SA, such as judgment, correction, repetition, and localization tasks, do not distinguish the variations between what would be the result of ordinary linguistic processing (syntactic competence) and what would be derived from the child's metasyntactic activity (syntactic awareness).

Goodwin et al. (2021) evaluated morphological awareness, which is the metalinguistic ability to consciously manipulate the structure and formation of words, considering both lexical and inflectional morphemes. The latter are more closely associated with the comprehension and production of syntactic structures. In their study, it was found that out of 14 tests measuring morphosyntactic awareness in 3,214 students from 5th to 8th grade, only 7 showed acceptable validity and reliability indices. This finding is relevant to the present study because morphology and syntax are related in language processing, and both involve the ability to manipulate and analyze linguistic rules.

On the other hand, although our study differs from the one conducted by Schindler et al. (2018), which showed that the Grammaticality Judgment task is sensitive for evaluating SA in schoolchildren, it should be considered that their task included 76 stimuli (38 oral/38 written) and evaluated a sample of 1,380 subjects from 1st to 4th grade within the context of fictional stories. This highlights the importance of methodological factors such as testing conditions and sample sizes to improve the sensitivity of such assessment tools.

Additionally, it was interesting to observe an overlap in SA performance between grades 2-4, 4-6, and 6-8. This result could reflect a pattern of significant, albeit extremely gradual, changes in the development of syntactic awareness, which would occur every two or four years.

Indeed, the tests with greater discriminative power pointed at several plateaus in SA development during these specific periods, with almost identical performance. This finding aligns with a previous study in Chilean students from 3rd and 6th grade, which showed gradual increases in SA every two years, and a stagnation starting from 5th grade in phonological awareness skills (Mariángel & Jiménez, 2016).

It is worth noting that the Identification of Grammatical Function task, in which students were required to use their grammatical knowledge to identify the functions of subject, object, verb, adjective, and adverb in sentences, had the highest discriminative power across the grades (LD1 = +0.915). This suggests that this task, involving more complex knowledge due to its specificity and abstract nature, is highly sensitive in terms of more accurately capturing changes in SA. In contrast, the correction, replication, and completion tasks do not have as strong a discriminative power, perhaps because they require both syntactic and semantic knowledge. Additionally, factors such as syntactic complexity and vocabulary familiarity would not contribute to this difference, as these linguistic variables were controlled during the development of each task.

Another result relevant to the analysis is that the Replication and Completion tasks showed the greatest sensitivity in detecting variations across a broader range of school levels, indicating that these tests could provide more detailed and precise information about the development of SA, even when those differences are small. This is likely because these tasks represent greater cognitive complexity, requiring not only an active knowledge of grammatical rules but also memory resources for the participant to identify grammatical errors, retain that information, and replicate them accurately.

The Completion Task, for its part, is more cognitively challenging than the Correction Task, as it requires quickly recognizing the syntactic and semantic structure of the sentence to select a word that is coherent and makes sense in the phrase.

A limitation of this study is that it is preliminary research presenting initial findings on the evaluation of syntactic awareness in schoolchildren. Nevertheless, the results provide a clear basis for reflecting on the necessary adjustments for developing more precise metalinguistic evaluation tools.

A second limitation relates to the size and representativeness of the sample. Replicating this study with representative samples from different educational levels and types of institutions (public and private) would constitute an advancement toward the standardization of SA assessment tasks. Moreover, the results show there is a need to review the proposed tasks, their methodology, and difficulty levels, in order to increase their discriminative capacity.

Lastly, the practical implications of this pilot study are both methodological and educational. Methodologically, the results confirm which tasks are most effective for measuring syntactic awareness—a topic that remains debated (Cain, 2007; Correa, 2004; Goodwin et al., 2021; Navarro & Rodríguez, 2014)—and make it possible to identify tasks where the design or application protocol require adjustments. Educationally, this would provide tools for evaluating skills related to the development of literacy, facilitating the identification and intervention of difficulties detected during development. Furthermore, it could help in adopting curricular strategies that support the progress of these skills, as well as in selecting pedagogic materials and resources, especially considering that syntactic skills are relegated to a secondary position in the school curriculum (Ministerio de Educación [MINEDUC], 2018).

CONCLUSIONS

The evidence gathered in this study highlights the following:

1. Not all tasks used to measure syntactic awareness are sensitive enough to capture individual differences in this skill, so greater precision is needed in the construct underlying it, as well as including multiple dimensions within the skills.
2. Not all tasks are equally sensitive at all ages. Therefore, the design of these instruments should consider a developmental approach, in order to use tests that are sensitive to the changes in the development of these skills.
3. Tasks that are not discriminative do not indicate invalidity, but rather they require revision in terms of the quantity and difficulty of the items and the types of evaluation procedures.
4. It is advisable to control additional cognitive variables that might be associated with syntactic awareness in children, such as working memory, processing speed, and their relationship to academic performance.

Finally, we believe this study represents a starting point for future research in the field, as it contributes to the design and implementation of syntactic awareness assessments and potential

educational interventions based on contextualized scientific evidence, aimed at improving this skill.

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