Subordinated clauses usage and assessment of syntactic maturity: A comparison of oral and written retellings in beginning writers

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Abstract: The present longitudinal study aims to explore possible syntactic complexity differences between oral and written story retellings produced by Spanish speaking children at the end of the 1st and 2nd grades of primary education. It is assumed that differences between oral and written modalities can be found due in part to the cognitive demands of low level writing skills. Indeed, it has been observed that written texts produced by children are shorter and of lower quality than oral ones (Berninger, et al., , 1992; Berninger & Swanson,1994). However, how the transcription skills might constrain the syntactic complexity of children's written texts is not well established.

The children (N=163) that participated in this study were attending three different schools located in Córdoba Province, Argentina. The children were examined at the end of the 1st and 2nd year of primary education. The oral and written retellings were analyzed using Length, T- unit number and Syntactic Complexity Index (SCI) (Hunt, 1965; 1970). The analysis of children's productions showed differences between grades and modalities. The differences between modalities were found in text Length and T-unit, but not in SCI. These results suggest that transcription skills do not affect syntactic performance. Nevertheless, a more detailed analysis revealed differences between groups. Possible restrictions of the original text on children's performance were also observed. The implications and the scope of the SCI and units used for the analysis are furthered discussed.

Keywords: developmental writing processes; oral and written style differences; syntactic maturity

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1. Introduction

According to previous studies, it can be assumed that some differences between oral and written texts, observed in children productions, may be a consequence of the specific characteristics of writing cognitive demands (Berninger, et al. , 1992; Berninger & Swanson, 1994).

In fact, writing production involves two main levels of processing, a low level that includes phonological codification and grapho-motor skills and a high level referring to composition processes (Juel, Griffith, & Gough, 1986; Juel, 1988; Berninger et al., 1992). Because the low level or transcription skills are cognitively very costly when children begin to write, these skills could constrain the composition processes: written texts tend to be shorter and less complex than oral productions (Berninger & Swanson, 1994). The syntactic complexity of the written productions could also be affected by low level skills restrictions, since text quality depends on memory span and the use of complex linguistic devices (Alamargot & Chanquoy, 2001).

In this work we explore the characteristics of low level restrictions that could been inferred from comparing the use of subordinated sentences in oral and written story retellings produced by Spanish speaking children at the end of the 1st and 2nd grades of primary education.

The process of children's syntax development has been described mainly from the perspective of how children acquire some level of Syntactic Maturity. Syntactic Maturity has been understood as a capacity that allows people to produce complex syntactic units. It has been operationalized as a complex index in which one of the most important features concerns embedding and formation of subordinated clauses. Hunt (1965; 1970) studied syntactic complexity in texts written by children. Within the frame of generative grammar, he stated that syntactic complexity is evaluated by considering an index that could show the number of transformations of a basic sentence withthis index, consequently linked to cognitive complexity. Hunt (1970) identified three main indexes to establish the level of text productions' syntactic complexity. The first one was the Media Length of Minimal Terminable Syntactic Unit (T- Unit). A T- unit,defined by Hunt as a main clause and any subordinated clauses attached to it. The second index was the clause- Length and the last one, the Syntactic Complexity Index (SCI), which showed the number of subordinated sentences for every T-unit.

It has been observed that Syntactic Maturity develops with age and school level andcan be identified by several features such as: T-unit -or clause- increase, phrase Length increase, a wider range of tense, aspect verb forms and coordination decrease along with subordination increase, etc. (Hunt, 1965; 1970; O'Donnell,1974; Loban, 1976, Herrera Lima, 1991; Olloqui de Montenegro, 1991;Veliz,1988; 1999 y Klecan-Aker & Hedrick, 1985). When socioeconomic level was taken into account, differences between groups in Syntactic complexity (Véliz, 2004; Peronard Thierry & Valencia Soler, 1978) and Media Length (Peronard, 1975) were observed in some studies. It

should be noted that, on the contrary, results from other studies conducted using children groups with different socioeconomic background, did not show differences in SCI (Olloqui de Montenegro, 1991)

In Spanish, as in English, it has been considered that syntactic development is associated with a higher frequency of subordinated sentences, as it was observed in several works (Coloma, Peñaloza & Fernández, 2007; Véliz, 1988; Alarcos Llorach, 1976; Gili Gaya, 1972.).

Véliz (1988) was the first researcher who explored the T-unit in Spanish speaking children. She assessed the Syntactic Maturity in written texts produced by Chilean students from primary and secondary school and found an increase of the T-unit Media Length, the clause Media Length and the SCI with age and school level. Similar findings were obtained in other studies with Spanish speaking children in different countries: Mexico (Herrera Lima, 1991); Dominican Republic (Olloqui de Montenegro, 1991); Puerto Rico (Vázquez, 1991 and Rodríguez Fonseca, 1991), Spain (Torres González, 1996, 1997) and USA –with Spanish speaking children-(Gutierrez- Clellend & Hofstetter,1994). However, if we compare the SCI scores obtained in each of these studies, we observe some discrepancies. For instance, Rodriguez Fonseca (1991) observed that in 2ndgrade, SCI was 1.29; in 4th grade, SCI was 1.45, and in 6th grade, it was 1.66. Vázquez (1991), also from Puerto Rico, found lower measurements for older children, where SCI was 1.33 for 9th grade and SCI was 1.53 for 12th grade. In Mexico, Herrera Lima (1991) assessed the same grade levels as Rodríguez Fonseca (1991), but SCI values were higher: 1.70, 1.92 and 2.15. These scores are different from the pioneering studies of Véliz (1988) from Chile, and Olloqui de Montenegro (1991) from Dominica and Torres González (1996; 1997) from Spain. In spite of these differences, researcher continue using SCI as an index of Syntactic Maturity.

ButSyntactic Maturity varies depending on textual genre and the modality of production. Indeed, there is clear evidence that argumentative, narrative, spontaneous conversation and other kinds of genres differ in syntactic complexity, differences that have been identified in studies carried on not only with adults but also with school- age students and children (Schick, 1997; Véliz, 1999; Silva, 2008, Verhoeven, Aparici, Cahana-Amitay, Hell, Kriz &Viguié-Simon, 2002; Klecan-Aker & Hedrick, 1985; Crowhurst, 1980).

However, SCI index is not always reliable. For example, many studies from theoretical and empirical perspectives, judge the distinction between coordinated and subordinated forms as fuzzy because speakers select one of these forms according to their perspective in regards to the relationship between events and /or agents (Langacker, 1987; 2000; Givon, 1990; Borzi, 1995, 2001; etc; for a revision of empirical researches see Tomasello, 2003). Nevertheless, in studies about Syntactic Maturity, this view is not taken into account. In recent studies the traditional perspective is sustained: complex sentences are those which contain one or more dependent clauses and this usage implies a high level of syntactic development (Véliz,

1999). On the other hand, in others a high amount of clause coordination was regarded as a sign of syntactic immaturity (Véliz, 1999; Bartolomé Rodríguez, 2009).

The T-unit measures have also been questioned because, even when it is a quantitatively important index, it cannot explain other aspects of Syntactic Maturity (O'Donnell, 1976). This index does not reflect the variety of structures used. In other words, two texts that have the same SCI could have different kinds of subordinated sentences, and this distinction is not considered (Rodriguez Fonseca, 1999).

2. Syntactic Complexity in oral and written production

The syntactic complexity differences between oral and written productions – the main concern of this study – has also been addressed in previous studies (cf. Calude, 2005). However, there has not been complete agreement regarding the contrast between modalities.

Some authors consider that written language is syntactically more complex than spoken language because the subordination is more frequent (Horn, 1926 en Hudson-Ettle 1998; Harrel, 1957; Drieman, 1962; Blankenship, 1962; O'Donnell, 1974; Kroll, 1977; Chafe & Tannen, 1987; Ochs, 1979, for a review, see Calude, 2005). Other researchers, on the contrary, found that oral productions present a higher frequency of subordination than written language, even when in this modality a more complex and more varied vocabulary is observed (Horowitz & Newman, 1964; De Vito, 1965; Biber, 1988).

Halliday (1989) considers that both modalities are complex but in a different way: grammatical structures are more complex in spoken language, while lexical items are more complex in written language. For their part, Kirk (1997) and Miller & Weinert (1998) think that some constructions can be found in one of the modalities but not in the other or the same structure can be use with a different function in the two modalities. For some authors, both modalities present a similar level of complexity and the differences can be associated to the level of formality, the characteristics of planning, the level of education of the subjects who participated in the studies, etc. (Beaman, 1984; Thompson, 1984; Biber, 1986; Miller, 1994).

Recently, Cleland & Pickering (2006) explored whether the underlying processes were the same in writing and speaking. The results allowed them to conclude that syntactic forms are constructed by the same mechanisms in both modalities.

It is worth noting that most of the studies comparing spoken and written modalities have been made with adults or with children with proficient writing skills (see revision in Calude, 2005; Chafe & Tannen, 1987); but beginning writers' productions have not been considered. In fact, when the basic skills of writing –like spelling and grapho-motor abilities- are not automatized, they could constrain the written production in many ways. For example, written texts produced by children are shorter and of lower quality than oral ones, due to the cognitive demands of basic or transcription skills

(Berninger et al., 1992; Berninger & Swanson, 1994; Mc Cutchen, 2000; Bourdin & Fayol, 2000). However, it is not well established how the transcription skills could constrain the syntactic complexity of children's written texts.

The present longitudinal study examined whether there were differences in syntactic complexity between oral and written productions and, whether these differences could be explained by the constraints of the transcription skills in writing. The longitudinal design allowed us to minimize the inter-individual differences that might alter the performance patterns that resulted from differences between modalities. Furthermore, if it is assumed that transcription cognitive demands decrease with writing improvement and/or increase with age, a longitudinal study should reveal minimal changes in SCI.

With this purpose, we analysed children's oral and written retellings of a story, attending to T- unit number, Length and SCI.

In spite of the fact that there are many studies in which the validity of SCI as a Syntactic Maturity Index is called into question (See revision in Rodriguez Fonseca, 1999), this index was selected because in Spanish studies it is still considered as a main measure of Syntactic Maturity level (Gutierrez-Clellend & Hofstetter, 1994; Gutierrez-Clellend, 1998;Veliz, 2004).

3. Method

3.1 Participants

One hundred and sixty-three children participated in this study. The children attended three different schools from the province of Córdoba, Argentina: Group 1 (G1) an urban private school, middle socioeconomic level, Group 2 (G2) an urban public school, middle socioeconomic level, and Group 3 (G3) a rural public school, low socioeconomic level. The socioeconomic level was determined by criteria that considered educational levels and occupational scales (Sautú, 1992).

In most of the families in G1, both or at least one of the parents were professionals (with university or tertiary education); in G2, most of the parents had reached secondary education level and some of them tertiary and university education levels and in G3, most of the parents had reached primary and secondary levels. Just three parents had reached a tertiary level of education and most of them worked doing manual labor.

The children were examined at two different moments: at the end of the first year (Mean age: 6:11; range: 6:6 -7:11), and at the end of the second year (Mean age: 7:11; range: 7:6 -8:11). The G1 was formed by 51children (Mean age 6.10, at 1st assess), G2 by 77 children (Mean age 6.11, at 1st assess) and G3 by 27 children (Mean age 6.11, at

1st assess)[1]. None of them had any kind of language disorder or other pathologies that could affect language performance. All of the children were monolingual and proficient Spanish speakers.

3.2 Materials

Experimental Stimuli: In order to assess children's oral and written performance, they were asked to retell a short story with a canonical structure (Stein & Glenn, 1979). This task was selected because it was assumed that retelling allows for a certain control over the stimulus input in order to assess the amount of information recalled and the use of syntactic resources (Puranik, Lombardino & Altmann, 2008). In fact, in a retelling task, the planning process is not involved. This situation allowed us to measure SCI independently of planning demands which could interfere with children's differentperformance modalities.

We used the same text to assess oral and written performance because, in a previous pilot study, in which different counterbalanced stimuli texts were used, a text effect was observed in spite of the fact that typical parameters such as Length, Syntactic complexity and MLU were controlled for (Sánchez Abchi, Borzone & Diuk, 2007).

In the text, 3 sentences included 1 subordinated clause each. These clauses played a fundamental role in text causal progression, because each of them contributed with key information to text coherence. For example, the first subordinate clause ("Then, he [the elephant] run to help the lion") allowed for the understanding of why later on the lion helped the elephant, when he saw a tiger ready to attack the elephant.

The text had a Length of 129 words, 19 T- unit and SCI was 1, 10 (See Appendix 1).

A word spelling task was also administered, to assess basic skills. This task was considered an indicator of the processes involved in the generation of a graphemic representation and of the processes involved in using the graphemic representation to generate the proper graphomotor processes for writing a word. In the test children were asked to write 32 words, represented by picture stimuli. After children had seen the picture, the experimenter said the word corresponding to the stimuli twice in order to avoid ambiguities. The words were selected according to frequency, complexity and Length criteria. Frequency was estimated with the Frequency Dictionary for Spanish from Alameda & Cuetos (1995).

In order to asses the non verbal cognitive abilities, at the beginning of the 1st year, the Raven Progressive Matrices Test (Raven, Court, & Raven, 1993) was applied. The median of the 3 groups was 21 points, a score that is within the range.

[1] G3 is more reduced than other groups because rural population is scarce compared with urban population.

3.3 Procedure

Retelling Task: Children had to retell a story that was previously read aloud twice by the researcher. The children were asked to re-tell the story to a friend or someone that hadn't heard the story during individual interviews. Interviews were audio taped and transcribed. If children had difficulty telling the story, the interviewer asked them to continue, using general open-ended questions (*"And then, what happened?).*

In the case of written retellings, children were asked to re-write the story. Children were tested collectively. They had no time limit in which to write. They were asked to write a text for children who had not heard the story.

The children were tested in two sessions with a week between them. The presentation of the tasks was counterbalanced across the participants.

Word spelling task: Children had to write in the blank space beside each picture on a sheet of paper, with these pictures representing the 32 stimuli. Previously, the researcher had named each picture in order to avoid ambiguities in the denomination.

The score was the number of words written in a phonological way: that is to say, when a child wrote [baca] instead of the proper form [vaca] "cow" the word was considered correct, because both letters [b] and [v] are pronounced /b/ in Spanish.

3.4 Analysis of empirical information

First, we quantified the number of subordinated sentences in oral and written productions as well as in the text read (the Target text) to assess the Syntactic Complexity Index. Then, the language samples were segmented into T- units (Hunt, 1970). According to Hunt (1970) and Véliz (1988), T-units consist of a main clause and all of its subordinate clauses. The SCI was calculated according to Véliz (1988), and this measure was obtained by dividing the total number of main clauses and subordinated clauses by the total number of T-units. This index reflects the number of times that a subordinated clause is attached to a main clause. Also, the amount of words of each text (Length) was considered.

4. Results

The analysis of children's productions showed differences between grades and modalities. Table 1 presents the Media (μ) and the Standard Deviation (δ) of text Length in quantity of words, T-Unit and SCI, in 1st and 2nd grade, in oral and written retellings.

	1st grade						2nd grade					
	Length		T-unit		SCI		Length		T-unit		SCI	
	O	W	O	W	O	W	O	W	O	W	O	W
μ	65,2	35,6	10,9	6,9	1,09	1,08	81.3	59,9	12,8	10.3	1,11	1,13

Δ	19,7	22,6	3,3	4,1	0,1	0,2	20,4	20,8	3,1	3,2	1,1	0,1

Table 1. Length, T-Unit and SCI of written and oral productions.

Differences between oral and written productions were observed: oral productions were longer and more complex than written productions, in 1st and 2nd grade and these differences were statistically significant in all the cases except for the SCI (for 1st grade: length: t(df 160)=15,2 , p< .000; T-unit: t(df 162)= 11,2 p<.000; SCI: t(df 162)= 0,255 p<.799; for 2nd grade: length: t(df 156)=12,437 p<.000; T-unit: t(df 162) =9,03 p<.000; SCI: t(df 162)=-1,137 p<.170).

In 1st grade, oral productions were 49,6% shorter than the original text, with a T-unit Media 42% lower, as well. In written productions, the Length shortening was greater (72,8% in Length and with T-units Media 63,6% shorter than in oral productions).

In 2nd grade, the same pattern wass observed: oral reduction in Length 36,9% and in T- unit 32,6%; Written reduction in Length 53,4% and in T- unit 45,7%. Even when the Media Length and the Media T-unit of the texts produced by children were lower than in the target text, the SCI was similar in both modalities, oral and written. In fact, in 1st and 2nd grade, SCI values of oral and written retellings were close to the target text measure (1, 10), which suggests that, although Length is reduced, the re-telling has the same proportional relationship observed between subordinated sentences and Length of the target text.

In many cases, Standard Deviations (δ) were higher than Medias. In fact, the δ was high in Length and T-unit measures in 2nd grade, but they were higher in SCI, which could indicate a non-normal distribution of the scores.

Overall, these findings suggest that children of both grades could remember the text, as the scores in oral modality showed, but that they had some difficulties in writing it. In fact, it is possible to infer that written production is more difficult than oral production. The differences between both modalities could be due to the constraints that transcription skills – spelling and graphomotor realization – impose on text generation processes at the beginning of learning to write (Berninger et al. 1992; Berninger & Swanson, 1994). When basic transcription skills are not automatized, they are very costly in cognitive resources, and affect working memory capacity. Consequently, less conscious attention is devoted to high level processes – like text generation or planning – and these operations can be constrained (Berninger et al., 1992; Berninger & Swanson, 1994; Mc Cutchen, 1996; Bourdin & Fayol, 2000; Chanquoy & Alamargot, 2003).

The difference between oral and writing is reduced in 2nd grade, which could indicate that transcription skills constraints have less incidences on children's performance.

Also, if we compare each index in a longitudinal perspective, we observe an increase of the μ Length extension, μ T-unit number and μ SCI in both modalities (See Table 1).

The differences between grades were statistically significant in all cases, except in oral SCI (Oral Length: *t* (df 160) =-9.590 *p*< .000; Oral T-unit: *t* (df 159) =-6,311 *p*<,000 ; SCI oral: *t*(df 160) =-1085 *p*<,279; Written Length: *t* (df 157) =-16,123 *p*< ,000; Written T-unit: *t* (df 159) =-10,444 *p*< ,000 ; Written SCI : *t* (df 162) =-2,567 *p*< ,011).

The fact that the SCI increment is significant in writing productions, but not in oral ones, could be explained by an incipient automatization of transcriptions skills in 2nd grade, which may imply a reduction of cognitive demands.

In order to explore this possibility, correlation analysis among measures of writing text and the word spelling task, which taps low level skills, was carried out. The results are presented in Table 2 and Table 3.

Table 2. Pearson's Correlations among text measures and word spelling task at the end of 1st year

		T-u	SCI	Length	Word Spelling
T-u	P.C	1.000	.081	.904**	.308**
SCI	P.C	.081	1.000	.083	.331**
LENGTH	P.C	.904**	.083	1.000	.462**
Word Spelling	P.C	.308**	.331**	.462**	1.000

Note: * Indicates that correlation is significant at the 0.05 level (2-tailed) and ** Indicates that correlation is significant at the 0.01 level (2-tailed).

Table 3. Pearson's Correlations among text measures and word spelling task at the end of 2° grade

		T-unit	SCI	Length	Word Spelling
T-u	P.C	1.000	.126	.853**	-.043
SCI	P.C	.126	1.000	.288**	.265*
LENGTH	P.C	.853**	.288**	1.000	-.090
Word Spelling	P.C	-.043	.265*	-.090	1.000

Note: * Indicates that correlation is significant at the 0.05 level (2-tailed) and ** Indicates that correlation is significant at the 0.01 level (2-tailed).

The word spelling task correlates significantly with T-units, Length and SCI of written productions in 1st grade (Table 2). However, at the end of 2nd grade, the task of word spelling presents significant correlations only with SCI (Table 3).

In fact, the change in the pattern of correlations is not unexpected, if we consider that children have reached some level of mastery over basic skills, which allowed them to write words more or less fluently. Consequently, basic skills could have less influence

in text writing. Nonetheless, these results must be considered just as a hypothesis, because Standard Deviations are high, especially in SCI, an index of subordination strategies usage.

In order to explore the possible differences between groups and probable interaction effect of different factors, a repeated measures multivariate analyses of variance (MANOVA), with two factors (time x group) was conducted (analysis (F (dl 6; df 145)=6471.009 ; *p*=.000) . A significant Interaction effect was observed for written T-unit, written SCI, and length in both modalities (*p*<.000) However, there was no interaction effect for oral T-units (*p*=.137). A tendency of interaction effect was observed for Oral SCI (*p*=0.78).

The post hoc analysis, with the intersubjects factor "group" showed differences between schools, as is shown in Table 4.

Table 4. Differences between groups. Medias and SD's in T-Unit, SCI and Length

GRADE	GROUP		ORAL			WRITTEN		
			T-U	SCI	Length	T-U	SCI	Length
1st grade	G1 (n= 59)	*M*	11.6	1.11	71.3	5.0	1.15	27.9
		SD	3.2	0.1	16.7	3.0	0.2	16.5
	G2 (n=77)	*M*	10.5	1.1	61.3	9.0	1.08	43.5
		SD	3.4	0.9	20.5	4.1	0.9	24.5
	G3 (n=27)	*M*	10.4	1.1	62.6	5.5	0.9	28.8
		SD	3.5	0.7	20.7	3.7	0.2	21.1
2nd grade	G1 (n= 59)	*M*	12.7	1.1	80.4	9.8	3.1	58.8
		SD	3.6	0.2	20.5	1.1	0.1	17.8
	G2 (n=77)	*M*	12.8	1.1	81.7	11.4	1.1	66.6
		SD	3.1	0.1	21.8	3.2	0.1	22.4
	G3 (n=27)	*M*	13.1	1.12	81.9	8.4	1.1	50.3
		SD	2.1	0.9	15.8	3.1	0.3	18.0

In oral productions, the differences between groups were not significant, except in oral Length: G1 scored significantly better than the other groups (*p*= <.05). In writing, in 1st grade, G2 obtained the best scores in Length and in T-unit measures (*p*= <.05). In 2nd grade, the difference between G2 and the other groups was significant just in written T-unit (*p*= <.05). According to these values, the Socioeconomic Level seems not to have a significant incidence on this task, but in turn differences in pedagogical strategies to promote writing activities may account for the differences observed between groups.

In fact, in G2, teachers proposed written textual activities every week during the academic year. In these situations, teachers provided scaffolding and motivated children to continue writing, and they also recognized their achievements and suggested corrections to them. This group had a special training in writing strategies, which seems to have had an impact at the level of task performance. Although this group had the higher scores in most of the measures, this advantage was not observed in SCI, which suggests that, at best, performance in writing is not necessarily linked to

the use of a more complex syntax. The highest scores of G1 in written SCI support this hypothesis.

Finally, we calculated the correlations between the amount of subordinated sentence in written productions, the written Length, and the written T-units to determinate whether there was a relationship between including embedding sentences in the texts and fluency in text production, operationalized with Length measures. The correlations are presented in Table 5.

Table 5. Pearson's Correlations between subordinated sentences, Length and T-unit in writing production

			Written subord. sentences	**Written length**	**Written T-Unit**
1st	Written subord.	P.C	1.000	.478**	.406**
	Written Length	P.C	.478**	1.000	.904**
	Written T-Unit	P.C	.406**	.904**	1.000
			Written subord. sentences	**Written length**	**Written T-Unit**
2nd	Written subord.	P.C	1.000	.571**	.442**
	Written Length	P.C	.571**	1.000	.853**
	Written T-Unit	P.C	.442**	.853**	1.000

Note: * Indicates that correlation is significant at the 0.05 level (2-tailed) and ** Indicates that correlation is significant at the 0.01 level (2-tailed).

We observed a positive correlation in both modalities between the number of written subordinated sentences, Length and number of T-unit in 1st and 2nd grade (p=.001; 2 tailed) (Table 5). These results suggest that fluency is linked with syntactic complexity in some way.

5. Discussion

The results of this study show that the assessment of Syntactic Maturity development in beginning writers can be more complex than in adults or in proficient writers. In fact, when we compared oral and written productions, we observed differences between modalities in text Length and T-unit, but not in SCI. These results suggest that transcription skills do not affect Syntactic level.

But, if we consider the positive correlation of written SCI with the transcription task – word spelling task- and the significant developmental increase of written SCI values, we can assume that there is a relationship between modality and Syntactic Maturity, and this relation is less strong in 2nd grade due to a progressive automatization of low level skills.

In this sense, we wonder why the modality would affect Length of the narratives, μ of T-units or their amount, but not the syntactic complexity. Considering that target text has similar values in SCI to those obtained by the children, one possible answer is that the target text strongly constrains the performance, at least, at the beginning of learning. But in order to determine this, it would be necessary to analyze children's performances in other elicitation conditions.

In fact, it is possible to assume that certain features of the passations, for example the presence of an opened general question or the individual session in oral retelling, could account for the differences observed. Further studies would be necessary with more similar elicitation conditions for testing performance in both modalities.

In this sense, the results obtained in a previous pilot study allowed us to assume that, in Spanish, making counterbalanced texts may involve compensating factors not considered traditionally such as cognitive salience of characters, order of mention, frequency of words, etc.

Nevertheless, the reduction of the differences between oral and written productions in 2nd grade cannot be attributed to the elicitation conditions, but rather to factors associated with the modalities; for example the transcription constraints in written modality.

Also, as it was observed by Clelland & Pickering (2006), the instrument – in our case a short story - could have generated syntactic priming for both modalities, which might be an obstacle for the spontaneous use of syntactic resources, in the sense that children produced a similar construction to the target text.

On the other hand, it could be assumed that beginning writers are "conservative" in syntactic production. The studies by O Donnell (1974) and Loban (1976) provided empirical evidence that initial structures used by children in their writings were closely related to those they use in speech. In any case, to clarify this point, a quantitative analysis does not seem to be appropriate. Therefore, a qualitative approach, comparing the reformulation and the kind of subordinations used in each modality, would be required.

In contrast, the syntactic differences between modalities observed in adults, that seem to respond to other variables such as register, formality, audience constraints, etc. (Beaman, 1984; Thompson, 1984; Biber, 1988; Miller, 1994), were not observed in our corpora. Likely, in beginning writers, these variables have a lesser weight because children do not have a complete mastery yet of these aspects of linguistic and pragmatic knowledge. Indeed, writing models that considered writing process development at the beginning of learning, observed that writers focus their perspective on their own, and not on that of their audience (Bereiter & Scardamalia, 1987).

The absence of difference between groups observed in SCI scores, suggests – in agreement with other studies (Olloqui de Montenegro, 1991) - that socioeconomic levels do not have an influence on Syntactic Maturity, at least at this moment of the writing development process.

However, as Rodriguez Fonseca (1999) pointed out, SCI provides only a quantitative estimation of Syntactic Maturity. So, even when children from the three groups obtained similar scores in this index, there could be differences in the kind of subordinated structures they used. In this sense, we considered only three subordinate type clauses to pick up the subordinate clauses to calculate SCI, following Hunt's pioneering criteria (1970) and adaptations made for Spanish (Gutierrez- Clellen & Hofstetter, 1994). We took only into account relative clauses, nominal clauses and adverbial clauses.

To explain, a relative clause is an embedded clause that modifies a noun phrase: "había una vez un león que caminaba por el bosque" [There was once upon a lion who walked in the forest]; "Vio un tigre que lo quería atrapar" [He saw a tiger who wanted to hunt him]. A nominal clause is an embedded clause that functions as a complement in the main clause: "se acordó que el elefante lo había ayudado" [he remembered that the elephant had help him]. An adverbial clause is an embedded clause that provides information about circumstance (time, place, manner or reason): "Cuando el elefante se iba se le apareció el tigre" [when the elephant was leaving, the tiger appeared.]; "rugía porque se había caído en un pozo" [he roared because he had fallen down in a hole].

In fact, one group could have produced texts just with substantive clauses – like in the target text- and in other groups; on the contrary, adverbial clauses could be more frequent.

Furthermore, there are discussions about the nature of syntactic complexity in relation with maturity. Actually, there are some authors that consider that coordination or noun phrases can have different levels of complexity, and in some cases, these constructions can be more complex than subordination (for a revision, see Rimmer, 2008).

Since many languages have various and also superfluous items to indicate subordinated relationships (Givon, 1990), constructing an SCI that takes this into account would be more appropriate . In Spanish, subordinated relationship consists, of at least three items: 1) a certain syntactic position, 2) the presence of a relative pronoun or 3) connective and specific syntactic features that merge the subordinated with the principal clause (for instance, the presence of a casual marker). Thus, it is necessary to develop a new SCI which better reflects how the children handle these three items.

On the other hand, the high Standard deviation values could suggest that there are children with a higher Syntactic Maturity than others, but this difference does not respond to the socioeconomic variables studied. Considering that, at the beginning of this learning, transcription skills may constrain composition, we could assume that individual differences were due to spelling and graphomotor skills development. Nevertheless, there was not significant correlation between the spelling word and the task, which indicates that some other factors were likely responsible for this non-normal distribution. As such, individual differences could be the result of dissimilar trends of communicative competences development.

In fact, Silva (2008), who analyzed interviews between an adult and 5 and 7 year-old Spanish speaking children from different socioeconomic backgrounds, observed significant correlations among different communicative developmental indexes (MLU, total amount of words, and total amount of different types of discursive sequences) and the presence of Relative clauses in children's speech. She assumed that children could instantiate the cognitive relationships required to produce a specific syntax form - like a Relative Clause - when they can make use of a specific number of communicative–linguistic devices.

Finally, in contrast with other studies, we found a very slight increase in SCI from 1st to 2nd grade, that in Oral production are not significant. In contrast, other researchers have observed a more marked increase between school levels. There is a great variation in the scores among these studies and there is not complete agreement, even when studies were conducted in the same country and with similar population. Nevertheless, these findings are consistent with the significant increase throughout the grades, increment that was not observed in our study. The discrepancy between our results and those of other researchers could be explained because they did not assess correlative grades performance and probably because the instruments used to assess Syntactic Maturity were not the same as those used in this study.

In summary, the results obtained in this work support the hypothesis that written and spoken modalities share similar mechanisms of production, and that transcription skills seem not to constraint syntactic maturity, if measured with classical instruments. However, if we consider longitudinal differences in detail, we observe that differences in SCI could be explained by individual intra-group variations. These individual variations would suggest that syntactic planning requires other competencies besides lexical development.

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APPENDIX 1

There was upon a time a very fierce lion.
One day, the lion fell down in a very deep hole. He roared and roared.
An elephant heard it and he felt pity.
Then, he run to help the lion. The elephant put the trunk into the hole. The lion climbed onto the trunk and he run away.
The lion leaved very happy.
After a time, the lion was walking in the forest. Suddenly, he saw a tiger ready to attack the elephant. The lion remembered the elephant had been good with him and though he had to help him. Then he jumped on the tiger and the lion bitted him.
The tiger escaped frightened and the elephant survived. The lion and the elephant went out as good friends.
Closing sentence.

Había una vez un león muy feroz. Un día, el león cayó en un pozo muy profundo. Rugió y rugió. Un elefante lo escuchó y sintió pena. Entonces corrió a ayudar al león. El elefante puso un tronco de un árbol adentro del pozo y el león subió por tronco y escapó del pozo.
El león se fue muy contento.
Después de un tiempo, el león estaba caminando en el bosque. De repente, vio un tigre que estaba a punto de atacar al elefante. El león se acordó que el elefante había sido bueno con él y pensó que tenía que ayudarlo. Entonces saltó sobre el tigre y lo mordió.
El tigre escapó asustado y el elefante se salvó. El león y el elefante se fueron como buenos amigos.
Fórmula de cierre.