English Language & Literature Teaching, Vol. 18, No. 4 Winter 2012

A Study of Syntactic Complexity in Children's Storybooks with a Call for More Attention to Clausal Subordination

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Kim, Tae-Eun. (2012). A study of syntactic complexity in children's storybooks with a call for more attention to clausal subordination. *English Language & Literature Teaching, 18*(4), 93-113.

This research aims to assess the syntactic complexity in children's storybooks often used in elementary English classrooms and to investigate with what syntactic features English language learners would face difficulty as they read storybooks. Guiding this study three research questions are established as follows: (a) What is the nature of sentence length in children's storybooks measured by T-unit and dependent clause unit?; (b) What is the nature of clausal density in children's storybooks measured by clauses per T-unit?; and (c) Which kind of dependent clause is most frequently appeared in children's storybooks? To answer these research questions 30 children's storybooks of three reading levels were randomly selected for further analysis. For the measure of sentence length, total number of T-units, mean length of T-unit, and mean length of dependent clause-unit were calculated. For the measure of clausal density which reflects the extent of clausal subordination, the number of clauses per T-units was counted. Percentages of T-units containing three main types of dependent clauses were calculated to explore which kind of dependent clauses is most occupied in children's storybooks. As for the critical findings of the study, on average, 20 to 40 percent of T-units in a storybook contain one or more dependent clauses. In all of the storybooks, nominal clauses were appeared most frequently, and in more difficult storybooks, adverbial and nominal clauses tend to be contained much more than relative clauses. When selecting storybooks, it is imperative to look into the extent of clausal subordination, because dependent clause is the syntactic area with which elementary students would feel unfamiliar and difficult.

[storybooks/syntactic complexity/sentence length/clausal density/elementary students]

I. INTRODUCTION

The use of children's storybooks can be a valuable asset to teaching and learning

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English in EFL contexts. Reflecting this, much attention has been paid to children's storybooks to use for English education in elementary classrooms and outside of the school contexts. Such popularity of storybooks can be attributed to the advantages of using them as a language teaching source.

Storybooks can serve as a springboard for eliciting a wide variety of related language and learning activities. Storybook-based lesson plan can include activities for learning four language skills and grammar points and introduce new vocabulary and sentence structures in context (Ellis & Brewster, 2002; Han, 2001). In addition, story-based lesson plan and materials can be designed to help students develop multiple intelligences (Gardner, 1993) and learning strategies (Chamot, 2009). Most of all, storybooks are a motivating and enjoyable resource to learn English (Ur, 1996).

Like this, storybooks have many good reasons to use in the language classroom; on the other hand, some disadvantages of using storybooks with foreign language learners have been discussed (Ellis & Brewster, 2002; Sullivan, 1991). A criticism often aimed at using storybooks with English language learners is that "the language may be too complex" (Ellis & Brewster, 2002, p. 8).

Teachers who use storybooks in language classrooms may often experience that even though they choose storybooks with careful consideration to find out the one suitable for students' English ability, the text chosen may still include sentences that can give difficulty for students to comprehend their meaning. It is because storybooks are authentic materials, not graded for language learners. In many cases, such difficulty comes from syntactic complexity. Thus, this study is aimed at investigating how much syntactically complex the sentences in children's storybooks are. To explore this, the research questions are set as follows:

(a) What is the nature of sentence length in children's storybooks measured by T-unit and dependent clause unit?
(b) What is the nature of clausal density in children's storybooks measured by clauses per T-unit?
(c) Which kind of dependent clause is most frequently appeared in children's storybooks?

II. LITERATURE REVIEW

1. Syntactic Complexity

Linguistic difficulty of texts is one of the major arguments against using children's literature in the language classrooms. Causes of linguistic difficulty can largely come from

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two aspects: semantic difficulty and syntactic complexity. Semantic difficulty is related to difficulty with word-level features, such as the length of words, their frequency and familiarity. Syntactic complexity is related to difficulty with sentence-level text features. Often times, it is quantified by focusing on sentence length and sentence structure. In the following, details only about syntactic complexity, which has much to do with the purpose of the study, will be presented.

1) Sentence Length

Sentence length is often measured by the terminable unit or T-unit (Hunt, 1970), which is defined as "one main clause plus any subordinate clause or nonclausal structure that is attached to or embedded in it" (p. 4). Words per T-unit and the mean number of words per T-unit have been used as an index of measuring sentence length (Scott & Windsor, 2000). In general, longer T-units indicate a higher level of syntactic complexity and give more difficulty to process the sentence meaning, because more words at both phrase and clause levels are added to expand the sentence length.

2) Clausal Density

In addition to the measure of sentence length, syntactic complexity is measured with clausal density, which is defined as "the average number of clauses (main and subordinate) per T-unit" (Scott, 1988, p. 58). It is also called subordination index, calculated by "summing the total number of clauses (independent + subordinate) and dividing by the total number of T-units" (Nippold, Hesketh, Duthie, & Mansfield, 2005, p. 1049).

Only relying on the measure of sentence length fails to examine syntactic complexity because two sentences with the same number of words can be written by different levels and types of sentence structure. Thus, it is essential to go into the inside of T-unit sentence structure to examine how many clauses are included per T-unit. T-unit which includes greater number of clauses entails more complex syntactic structure. For example, the sentence examples (a1) and (a2) consists of one T-unit but different number of clauses. The sentence (a1) consists of one independent clause within one T-unit. On the contrary, the sentence (a2) comprises three clauses, including one independent clause and two subordinate clauses, adverbial and relative clauses, within the same one T-unit. Therefore, it is important to measure the ratio of clauses to T-units, in order to investigate the nature of complex and extensive subordination of clauses, and ultimately to measure the true nature of syntactic complexity of T-units.

(a1) The fox looked very happy.

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(a2) Mrs. De Soto stood by on the ladder, pointing out spots he had missed.
Note: Sentence examples are excerpted from *Doctor De Soto* by Steig (1990).

3) Clause Length

Clause length is to measure the length of text segments by unit of clause as opposed to longer units such as T-units or sentences. This measure is made by counting the number of words per clause. In some cases, information from multiple clauses can be written in a single clause in a concise manner (Beers & Nagy, 2009). For example, the sentence (b1) is composed of two subordinate clauses and one independent clause, and the sentence (b2), a single independent clause. The ideas of three clauses in (b1) are merged into a single clause in (b2), which results in fewer words in total but more words per clause. Therefore, it is important to consider the length of clauses itself along with the length of T-units or sentences for more accurate analysis of sentence complexity. In particular, the length of subordinate clauses can contribute to greater difficulty with processing than independent clauses, especially to those who have never learned explicitly before.

(b1) When she announced that she dropped out of school, it surprised them.
(b2) The announcement of her school drop-out surprised them.

2. Types of Sentences

1) Simple Sentence

A simple sentence contains a subject and a verb, and it expresses a complete thought. It can also contain a compound subject, a compound verb, or both. Sentence (c1) contains a subject and a verb. In sentence (c2) a compound subject *Juan and Arturo* is included. Sentence (c3) has a compound verb, *goes and studies*. Both a compound subject, *Alicia and Juan*, and a compound verb, *go and study*, are included in sentence (c4). These four types are all simple sentences, and one simple sentence is counted as one T-unit.

(c1) Some students [s] like [v] to study in the mornings.
(c2) Juan [s] and Arturo [s] play [v] football every afternoon.
(c3) Alicia [s] goes [v] to the library and studies [v] every day.
(c4) Alicia [s] and Juan [s] go [v] to the library together and study [v] every day
Note: [s] denotes a subject, and [v] denotes a verb.

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2) Compound Sentence

A compound sentence is a sentence that consists of two or more independent clauses, joined together by a comma and one of the seven coordinating conjunctions such as *for, and, nor, but, or, yet, so*; by a semicolon; by a semicolon and a conjunctive adverb such as *however, furthermore, therefore*. The examples of each type of compound sentences are (d1), (d2), and (d3) respectively. The number of independent clauses comprising a compound sentence comes to the same number of T-unit. For example, the sentence (d4) has three independent clauses joined by the coordinating conjunction *and*, so it is counted as three T-units.

(d1) I studied until two o'clock in the morning, so I am tired.
(d2) I studied until two o'clock in the morning; I am tired.
(d3) I studied until two o'clock in the morning; thus, I am tired.
(d4) He hugged Willy, and then they ran to the garden path, and there they danced until dawn.

Note: The sentence example (d4) is excerpted from *Alexander and the Wind-up Mouse* by Lionni (2006).

3) Complex Sentence

A complex sentence has an independent clause joined by one or more dependent (subordinate) clause(s). A dependent clause contains a subject and a main verb but do not make a complete statement, not being able to stand alone. There are three types of dependent clauses: relative [RC], adverbial [AVC], and nominal clauses [NC], and the sentence samples of each dependent clause are sentence (e1), (e2), and (e3) respectively. Although complex sentences are complex itself, containing one or multiple dependent clause(s) added to an independent clause, one complex sentence is counted as one T-unit, according to the definition of T-unit.

(e1) Every time they saw [RC] him they would scream [IC] for help or chase him with a broom.
(e2) One day, when there was [AVC] no one in the house, Alexander heard [IC] a squeak in Annie's room.
(e3) Is [IC] it true that you could change [NC] me into a wind-up mouse?

Note: [IC] denotes an independent clause. Sentence examples are excerpted from *Alexander and the Wind-up Mouse* by Lionni (2006).

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3. Advantages and Disadvantages of Literature in Language Learning and Teaching

Literature has been considered as an appropriate resource for language learning and teaching since the focus had started to be put on authentic language and materials. Many scholars have discussed that literature has many benefits to use as a language teaching source (Ellis & Brewster, 2002; Ghosn, 2002; Han, 2008; Hirvela & Belcher, 2001; Lazar, 1993; Ur, 1996). As Ghosn (2002) offered, four good reasons to use literature in primary school English language teaching are as follows:

- Authentic literature provides a motivation, meaningful context for language learning, since children are naturally drawn to stories.
- Literature can contribute to language learning. It presents natural language, language at its finest, and can thus foster vocabulary development in context.
- Literature can promote academic literacy and thinking skills.
- Literature can function as a change agent: good literature deals with some aspects of the human condition, and can thus contribute to the emotional development of the child, and foster positive interpersonal and intercultural attitudes. (p. 173)

In the meantime, some disadvantages of using storybooks with foreign language learners have been discussed (Ellis & Brewster, 2002; Sullivan, 1991; Tasneen, 2010). Tasneen (2010) explored teachers' and students' views about using literary texts in the language classes through the analysis of questionnaires, interviews, and classroom observations. As for results of the study, literature was believed as an asset as the language teaching resource; however, both the teachers and the students faced some problems with literature in the language learning and teaching. Two factors—the linguistic level of the text and the cultural unfamiliarity—hindered the students' comprehension of the text.

Similarly, Sullivan (1991) also indicated some disadvantages of literature in the language classroom. Linguistic difficulty had been one of the main arguments against literature in the language classes. Plus, learners need to have relevant background knowledge about culture to interpret texts.

Although most of the research has advocated the benefits of using literature for language learning and teaching, there has been not much research in particular that views the use of literature in the language classes with more critical eyes. Moreover, a little research has conducted thorough and in-depth analysis of what kind of linguistic features of children's literature contributes to generate linguistic difficulties for English language learners.

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III. METHOD

1. Materials

Children's storybooks were randomly selected and sorted into three reading levels—Group 1, 2, and 3. The Group 1 storybooks are the ones frequently read or used in grades 3 or 4, and the Group 2 storybooks, in grades 5 or 6. The Group 3 storybooks are for primary level students whose language ability excels the grade 6 level.

Children's books that have the following features were excluded for the study. First, like readers series, any leveled books that are purposefully written controlling vocabulary and sentence levels to match reader's language level were not included in the study. Next, if most of the texts in a storybook were written with incomplete sentences such as a form of phrases (see Figure 1 for the example), it was not selected for the study. Or if the main texts were delivered through illustrations such as a carton format, the storybook was not chosen for the study either. As for the text genre, only narrative text genre was selected, while expository text or non-prose such as songs, plays, or poems was ignored for the study.

FIGURE 1

Text excerpts from *Things I Like* by Browne (2003)

This is me and this is what I like:
Painting and riding my bike.
Playing with toys and dressing up.
Climbing trees and kicking a ball.
Hiding and acrobatics.
Building sand-castles and paddling in the sea. (ellipsis)

According to the selection criteria, thirty storybooks were chosen for the study as shown in Table 1.

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TABLE 1

List of Children's Storybooks

Level group	Text number	Title	Author	Publisher
Group 1	T1	Five little monkeys jumping on the bed	Eileen Christelow	Clarion Books
	T2	I love school!	Philemon Sturges	HarperCollins Publishers
	T3	I'm the best	Lucy Cousins	Walker Books
	T4	Mr Wolf's week	Colin Hawkins	Egmont Books
	T5	Not now, Bernard	David McKee	Red Fox
	T6	Silly Sally	Audrey Wood	Harcourt
	T7	The happy day	Ruth Krauss	HarperCollins Publishers
	T8	The very hungry caterpillar	Eric Carle	Puffin Books
	T9	Willy the Champ	Anthony Browne	Walker Books
	T10	Willy the dreamer	Anthony Browne	Walker Books
Group 2	T11	If you give a pig a pancake	Laura Numeroff	HarperCollins Publishers
	T12	Monkey puzzle	Julia Donaldson	Macmillan Children's Books
	T13	Mr. Gumpy's outing	John Burningham	Red Fox
	T14	Olivia	Ian Falconer	Atheneum Books for Young Readers
	T15	Olivia and the missing toy	Ian Falconer	Atheneum Books for Young Readers
	T16	Piggybook	Anthony Browne	Walker Books
	T17	The wind blew	Pat Hutchins	Aladdin Paperbacks
	T18	Tooth fairy	Audrey Wood	Child's Play
	T19	Where the wild things are	Maurice Sendak	Red Fox
	T20	Wolves	Emily Gravett	Macmillan Children's Books
Group 3	T21	Alexander and the wind-up mouse	Leo Lionni	Random House Children's Books
	T22	Amazing Grace	Mary Hoffman	Frances Lincoln Children's Books
	T23	Big wolf and little wolf	Nadine Brun-Cosme & Olivier Tallec	Enchanted Lion Books
	T24	Doctor De Soto	William Steig	Sunburst
	T25	Dr. Dog	Babette Cole	Dragonfly Books
	T26	Love you forever	Robert Munsch	Firefly Books
	T27	The princess and the dragon	Audrey Wood	Child's Play
	T28	The snowman	Raymond Briggs	Penguin Childrens Hardbacks
	T29	The true story of the 3 little pigs	Jon Scieszka	Viking
	T30	Winnie flies again	Valerie Thomas & Korky Paul	Oxford University Press

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2. Transcription and Coding

Storybooks were assigned with a code of a text number, which is TEXT plus a numeric number (e.g., TEXT 1). Each storybook text was transcribed. All written texts were segmented into T-units, and T-units are numbered consecutively.

Only finite independent and dependent clauses, containing a subject and a predicate, were coded; all nonfinite clauses that do not contain a subject were ignored. That is, any fragments or incomplete T-units were marked with parentheses and ignored for the present study. For example, responses that lack an independent clause (e.g., "No, Olivia, just one." "How about four?" "Two?" "Three?"), exclamations (e.g., "Whoops!" "Oh, no!"), or any other forms of fragments that lack a main verb and/or a subject (e.g., "Yes, if you don't trample about.") were excluded for further analysis of the study.

When it comes to the texts written in illustrations, which are often provided with speech bubbles or other forms, they were also excluded as they tend to be choppy and short due to the nature of spoken texts delivered with illustrations, which is different from the written text format.

After segmented into T-units, independent clauses were coded as [IC], and three main types of dependent clauses—relative, adverbial, and nominal clauses—were coded respectively as [RC], [AVC], and [NC]. These clause codes were placed immediately after the main verb, or the first verb if a clause contains more than one main verb (e.g., "But at night time, when that two-year-old was [AVC] quiet, she opened [IC] the door to his room, crawled across the floor, looked up over the side of his bed.") (see Appendix for an example of transcripts with codes).

3. Language Analysis

1) Sentence Length

Sentence length is often measured with the terminable unit, or T-unit (Hunt, 1970). For the first measure of syntactic complexity, or sentence length, the number of words per T-unit were counted. Words per T-unit is a measure of overall sentence length. Then, the mean number of words per T-unit, called the mean length of T-unit, were calculated by dividing the total number of words by the total number of T-units. Longer T-units refer to a higher level of syntactic complexity because more words are added and phrase and clause levels are expanded. Along with the mean calculation, standard deviation and range were drawn as well.

In addition to the measures of T-unit level, T-units were segmented again by clause-level in order to measure the mean number of words per clause. This measure of the mean length

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of clause-unit indicates the extent of length within clauses opposed to longer text segments like T-units. Likewise, standard deviation and range were included for this analysis, together with the calculation of mean.

2) Clausal Density

Another measure of syntactic difficulty is clausal density. It is also called as the subordination index because it reflects the extent of clausal subordination. Relying on the sentence length measure only is not sufficient for thorough investigation of sentence difficulty. The clauses per T-unit measure can reveal a more inside picture of why a certain sentence can be more difficult to process and comprehend.

A simple sentence long in length is likely to be easier to process the language to comprehend its meaning than a complex sentence which is relatively short in length but has dependent clauses in it. For example, the following sentence example (f1), which is a simple sentence that contains a compound verb, is longer than the sentence example (f2) by eight words. But the sentence (f2), which is a complex sentence that contains attached and embedded subordinate clauses, gives much more difficulty to process than (f1), although the sentence length is relatively shorter than (f1).

(f1) She picked [IC] up that great big boy and rocked him back and forth, back and forth, back and forth. (19 words)
(f2) When her mother sees [AVC] that she's had [NC] enough, they go [IC] home. (11 words)
Note: Sentence examples are excerpted from *Love you forever* by Munsch (2010).

Therefore, in order to measure the syntactic complexity embedded in children's storybooks, it is imperative to investigate dependent clauses in a complex sentence, of which three main kinds include relative clause, adverbial clause, and nominal clause. In this study, words per each dependent clause and the percentages of T-units containing each different dependent clause were drawn, in order to investigate the mean length of dependent clauses and which kind of dependent clause is used most frequently in the selected children's storybooks. Comparing across the storybooks, percentages rather than raw numbers were used to control for differences of the total number of words in storybooks.

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IV. RESULTS AND DISCUSSION

1. Sentence Length in Children's Storybooks of Three Levels

The total of thirty storybooks of three different levels were grouped and named as Group 1 for the easier books, Group 2, and Group 3 for the more difficult levels of books. Each group is comprised of ten storybooks. For each storybook the following variables are reported in Table 2: total number of T-units (T-TU), mean length of T-unit (ML-TU) in words, and mean length of dependent clause-unit (ML-DCU) in words.

TABLE 2

Measures of Sentence Length

Measure	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	Group 1 Mean
T-TU	28	25	46	17	23	21	33	25	20	15	25.3
ML-TU	7.14	6.72	4.98	8.59	6.7	7.81	4.03	8.96	6.6	6.53	6.81
ML-DCU	4	4.5	6	0	4.5	4.08	0	3	4	8.4	4.81
Measure	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	Group 2 Mean
T-TU	32	73	39	33	46	43	14	64	21	16	38.1
ML-TU	8.63	5.42	6.72	9.21	7.52	9.14	11.07	5.86	15.86	9.25	8.87
ML-DCU	5.44	3.57	5.00	5.93	5.33	6.28	3.8	5.1	5.93	6.67	5.31
Measure	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	Group 3 Mean
T-TU	86	76	95	118	66	86	37	127	96	52	83.9
ML-TU	7.87	9.22	10.32	9.01	8.03	8.58	10.43	8.62	8.88	8.37	8.93
ML-DCU	5.3	5.86	7.28	5.07	4.7	5.32	5.73	5.47	5.76	5.38	5.59

If only looking at measures of sentence length by groups rearranged in Table 3, the total number of T-units (T-TU) was 25.3 for Group 1, 38.1 for Group 2, and 83.9 for Group 3. The mean length of T-units (ML-TU) was 6.81, 8.87, and 8.93 for Group 1, Group 2, and Group 3 in order. The mean length of dependent clause-units (ML-DCU) was 4.81, 5.31, and 5.59 for the three groups in order.

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TABLE 3

Measures of Sentence Length by Groups of Three Levels

Measure	Group 1	Group 2	Group 3
T-TU			
Mean	25.3	38.1	83.9
SD	8.96	19.44	27.69
Range	15-46	14-73	37-127
ML-TU			
Mean	6.81	8.87	8.93
SD	1.50	3.01	0.87
Range	4.98-8.96	5.42-15.86	7.87-10.43
ML-DCU			
Mean	4.81	5.31	5.59
SD	1.67	1.00	0.69
Range	0-8.4	3.57-6.67	4.7-7.28

Note. T-TU=Total T-units, ML-TU=Mean length of T-unit, ML-DCU=Mean length of DC (dependent clause)-unit

Meanwhile, individual storybooks encompass a range of results, so it is critical to examine the idiosyncratic features in the linguistic way, deviating from the mean results. Such an examination should be also made when selecting storybooks for students. ML-DCU in TEXT 10 [*Willy the dreamer* (Browne, 2008a)] was 8.4 words, and this text has several sentences containing relatively longer dependent clauses than other texts, even though this storybook belongs to Group 1. The sentence examples with long dependent clauses which are written in 13 or 14 words are as follows:

Sometime Willy dreams [IC] that he's [NC] a film-star or a singer, a sumo wrestler, or a ballet dancer. (14 words for NC; TEXT 10)

Sometimes Willy dreams [IC] that he's [NC] a painter, or an explorer, a famous writer, or a scuba-diver. (13 words for NC; TEXT 10)

A similar instance can be found in Group 2. TEXT 14 [*Olivia* (Falconer, 2000)] contains a sentence which has a dependent clause of 20 words. TEXT 16 [*Piggybook* (Browne, 2008b)] contains a sentence which has two dependent clauses of 16 words; likewise, TEXT 19 [*Where the wild things are* (Sendak, 2000)] has a sentence which has four dependent clauses of 33 words in total. And these three cases of the length of dependent clause are far longer than its mean result of Group 2, or ML-DCU 5.31. The sentence examples are as follows:

In the morning, after she gets [AVC] up and moves the cat, and brushed her teeth, and combs her ears, and moves the cat, Olivia gets [IC] dressed. (20 words for AVC; TEXT 14)

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"Hurry [NC] up with the meal, old girl," Mr. Piggott called [IC] every evening when he came [AVC] home from his very important job. (7 words for NC, 9 words for AVC; TEXT 16)

And when he came [AVC1] to the place where the wild things are [RC], they roared [IC] their terrible roars and gnashed their terrible teeth and rolled their terrible eyes and showed their terrible claws till Max said [AVC2] "Be [NC] still!" and tamed them with the magic stick of staring into all their yellow eyes without blinking once. (6 words for AVC1, 5 words for RC, 20 words for AVC2, 2 words for NC; TEXT 19)

It is important to be aware that in some cases a storybook tends to contain sentences that are linguistically too challenging for the intended target readers. When selecting storybooks, the teachers need to look into how much dependent clauses are contained in a storybook and how long they are, because dependent clause is the grammar area with which elementary students would often feel unfamiliar and difficult.

2. Clausal Density in Children's Storybooks of Three Levels

When counting the number of clauses per T-units, both independent and dependent clauses were inclusive in counting as a clause. If a sentence does not have any dependent clause, the measure of clauses per T-units comes to 1. The amount of exceeding 1 accounts for the percentage of dependent clauses per T-units. Although there were a range of differences in clausal density among individual storybooks, the mean of clauses per T-units were 1.20, 1.33, and 1.40 for Group 1, Group 2, and Group 3 in order, as seen from Table 4. In other words, as for Group 1, on average, 20 percent of the T-units included in a storybook contain one or more dependent clauses. Likewise, for Group 2, 33 percent of the T-units included in a storybook have one or multiple dependent clauses, for Group 3, 40 percent. It means, if students have never learned about how to interpret the sentences expressed with dependent clauses, they may feel difficulty with processing the 20 percent to 40 percent of the text from a storybook, depending on the language level of storybooks, and those percentages are quite a significant amount of the text.

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TABLE 4

Measures of Clausal Density

Measure	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	Group 1 Mean
Clauses/ T-units	1.18	1.32	1.02	1	1.26	1.62	1	1.04	1.2	1.33	1.20
PcAVC	0	4	0	0	0	33.3	0	0	10	0	4.73
PcNC	0	8	2.2	0	26.1	4.8	0	0	10	33.3	8.44
PcRC	17.9	20	0	0	0	23.8	0	4	0	0	6.57
Measure	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20	Group 2 Mean
Clauses/ T-units	1.28	1.1	1.28	1.42	1.39	1.42	1.36	1.16	1.71	1.19	1.33
PcAVC	25	0	0	15.2	13	18.6	28.6	6.3	19	0	12.57
PcNC	0	8.2	28.2	21.2	26.1	23.3	0	9.4	38.1	6.3	16.08
PcRC	3.1	1.4	0	6.1	0	0	7.1	0	14.3	12.5	4.45
Measure	T21	T22	T23	T24	T25	T26	T27	T28	T29	T30	Group 3 Mean
Clauses/ T-units	1.35	1.55	1.44	1.48	1.41	1.4	1.41	1.3	1.34	1.31	1.40
PcAVC	14	19.7	20	17.8	12.1	34.9	16.2	14.2	9.4	1.9	16.02
PcNC	19.8	23.7	21.1	28	19.7	3.5	16.2	13.4	14.6	28.8	18.88
PcRC	1.16	11.8	3.2	2.5	9.1	1.2	8.1	2.4	10.4	0	4.99

Note. PcAVC=Percentage containing adverbial clauses; PcNC=Percentage containing nominal clauses; PcRC=Percentage containing relative clauses; Values for PcAVC, PcNC and PcRC are reported as percentage of T-units per a sample text.

Looking into storybooks individually, certain storybooks have much more amount of clauses per T-units than the mean results. The number of clauses per T-units in TEXT 6 [*Silly Sally* (Wood, 1992)] is 1.62, which is bigger than the mean result of Group 3. Out of the total 21 T-units, 13 T-units contain one or two dependent clauses, which comes to 61.9 percent of the total T-units containing dependent clauses. The following sentence samples that have adverbial and relative clauses appear multiple times in TEXT 6.

Silly Sally went [IC] to town, walking [AVC] backwards, upside down.
He tickled [IC] the pig who danced [RC] a jig.
And that's [IC] how Sally got [NC] to town, walking [AVC] backwards, upside down.

As for the examples from Group 2, the percentages of dependent clauses per T-units were 71 percent in TEXT 19 [*Where the wild things are* (Sendak, 2000)], 42 percent in

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TEXT 14 [*Olivia* (Falconer, 2000)] and TEXT 16 [*Piggybook* (Browne, 2008b)]. To comprehend these texts it is desperate in need to have an ability to interpret the sentences containing dependent clauses. In details, TEXT 19 has 21 T-units in total, among which 15 T-units each include one or up to four dependent clauses. TEXT 14 has 14 T-units containing one or two dependent clauses out of the total 33 T-units; TEXT 16 has 18 T-units containing dependent clauses out of the total 43 T-units. Some of the sentence examples are as follows:

When her mother sees [AVC] that she's had [NC] enough, they go [IC] home. (TEXT 14)

When they've finished [AVC] reading, Olivia's mother gives [IC] her a kiss and says, "You know, you really wear [NC] me out. But I love [NC] you anyway." (TEXT 14)

"Where's [NC] Mum?" demanded [IC] Mr. Piggott when he got [AVC] home from work. (TEXT 16)

That very night in Max's room a forest grew [IC] and grew and grew until his ceiling hung [AVC] with vines and the walls became [AVC] the world all around. (TEXT 19)

Some other sentence examples that include three types of dependent clauses from the other texts in Group 2 are as follows:

When you give [AVC] her the bubbles, she'll probably ask [IC] you for a toy. (TEXT 11)

But, Jessica, you know [IC] the Tooth Fairy can't swap [NC] for treasure unless you lose [AVC] a tooth. (TEXT 18)

Look [IC] what I found [NC] under your pillows. (TEXT 18)

In some area wolves have retreated [IC] to places where fewer people live [RC], such as forests and woodland. (TEXT 20)

Providing the text examples from Group 3, TEXT 22 [*Amazing Grace* (Hoffman & Binch, 2007)] has 1.55 clauses per T-units on average, which means that 55 percent of T-units containing dependent clauses are occupied in the text. TEXT 24 [*Doctor De Soto* (Steig, 1990)] includes 48 percent of T-units which include dependent clauses. In brief, in the Group 3 texts overall, T-unit sentences containing dependent clauses are occupied by 30 percent to 55 percent out of the total T-units. It reflects that if students do not know about dependent clauses and fail to learn them in context while reading or through activities, they would not comprehend 30 to 55 percent of the whole text accurately and properly. The following examples are from TEXT 22 and TEXT 24.

Raj said [IC] I couldn't be [NC] Peter Pan because I'm [AVC] a girl. (TEXT 22)

You can be [IC] anything you want [RC], Grace, if you put [AVC] your mind to it.

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(TEXT 22)

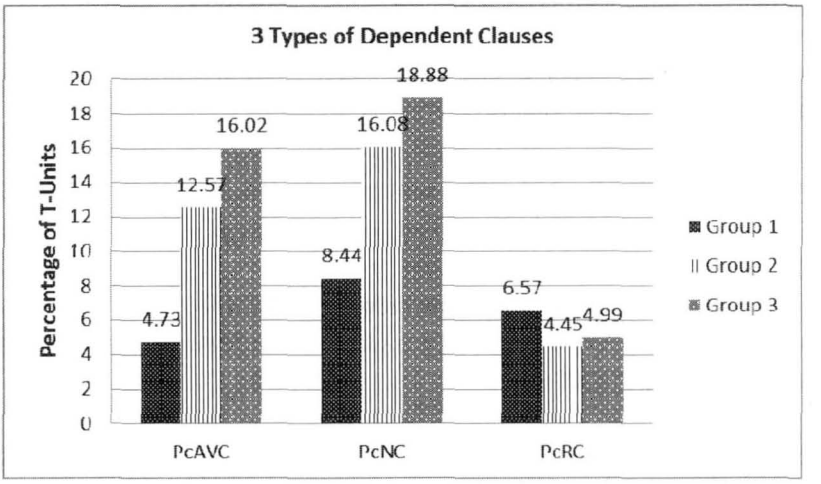
On his way home, he wondered [IC] if it would be [AVC] shabby of him to eat the De Sotos when the job was done [AVC]. (TEXT 24)

I have [IC] here a remarkable preparation developed [RC] only recently by my wife and me. (TEXT 24)

In addition, percentages of T-units containing adverbial clauses (PcAVC), nominal clauses (PcNC), and relative clauses (PcRC) were calculated to explore which kind of dependent clauses is most frequently appeared in storybooks and how much percentage of T-units contains each type of dependent clauses. The results were indicated in Table 4 and also visually displayed in Figure 2.

FIGURE 2

Percentage of T-Units Containing Dependent Clauses



In all of the groups, nominal clauses were used most frequently, occupying 8.44 percent of the total T-units for Group 1, 16.08 percent for Group 2, and 18.88 percent for Group 3. In Group 1, the second most frequent appearance in storybooks was relative clauses with 6.57 percent of the total T-units. In contrast, in Group 2 and Group 3, adverbial clauses were second most frequently appeared in storybooks with 12.57 percent and 16.02 percent respectively. And the least frequent appearance was relative clauses occupying a little percentage of the total T-units, with 4.45 and 4.99 percent in Group 2 and 3 respectively. In more difficult storybooks, adverbial and nominal clauses tend to be contained in storybooks much more than relative clauses.

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V. CONCLUSION AND IMPLICATIONS

The study can be an opportunity to urge the teachers who use storybooks in language teaching to take more careful consideration into the nature of syntactic features included rather than just relying on the level or the age range indication provided, when selecting storybooks for their students. A certain syntactic feature appeared in children's storybooks can be a barrier for students to be successful readers because it is beyond their language ability.

According to the findings of the study, the mean of clauses per T-units were 1.20, 1.33, and 1.40 for storybooks of Group 1, Group 2, and Group 3, although there were a range of variance among individual storybooks. It implies that dependent clauses were occupied 20 to 40 percent of T-units in a storybook. If students cannot process the sentences containing dependent clauses and also fail to learn them in context while reading or through activities, they may not comprehend 20 to 40 percent of the text accurately, which is quite a significant amount of the text. In addition, the mean length of dependent clause-units was 4.81, 5.31, and 5.59 for each group. Considering the percentage and length of dependent clauses appearing in storybooks, we need to pay attention to the extent of clausal subordination when choosing storybooks.

In more details, resulting from the analysis of which kind of dependent clauses is most frequently appeared in storybooks, nominal clauses were used most frequently in texts of all groups, occupying 8.44, 16.08, and 18.88 percent of the total T-units for Group 1, Group 2, and Group 3 in order. In Group 2 and Group 3, adverbial clauses were second most frequently appeared with 12.57 and 16.02 percent of the total T-units respectively. In brief, more difficult storybooks tend to contain adverbial and nominal clauses much more than relative clauses.

There are several limitations to the present research. First, the different selection of children's storybooks would lead to different results. Analysis of the huge number of storybooks could make the study results more valid enough to generalize. Second, in order to examine the language difficulty of texts, vocabulary difficulty should have been analyzed together with syntactic difficulty. In some cases, unfamiliar words can trigger difficulty when a sentence structure itself is not complex at all. If these two aspects were dealt with together in this present study, more thorough analysis to discover where the language difficulties lie in children's storybooks had been possibly made. However, due to the limiting scope of the study, this research has put a major focus on the syntactic aspect.

Beyond examining the syntactic complexity in quantitative manners, more in-depth analysis is also needed to explore specifically which grammar aspects are more often or less used in children's storybooks. To analyze this, for example, Botel and Granowsky's (1972) syntactic complexity formula, in which a range of sentence structures are grouped

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in the order of syntactic complexity, can be employed. Each unit of text in storybooks can be coded as one of the sentence structures from their formula, and it can give a clue about which sentence structure has been often appeared in children's storybooks. Then the next step would be to think deeply if that frequently used sentence structure engenders syntactic difficulty to English language learners or not.

Children's storybooks have been widely considered as good resources for English language learning for various reasons. On the other hand, the teacher must give in-depth consideration into the text itself, in order to judge if syntactic complexity embedded in the text is suitable for English language learners or not, given that storybooks are not created for English education and that they are literary texts in origin. For correct judgment, however, we need first a certain standard regarding how much clausal subordination and which type of subordinate clause would be proper for each grade level, so that we can compare storybooks and the standard in terms of syntactic complexity. Moreover, the syntactic features embedded in storybooks can be quite varying from one and another, even though they look like the books of the same language level in a glance. It is imperative to investigate the nature of sentence length and clausal density when selecting storybooks to use for English language learners. Critical eyes are required when choosing storybooks for English language learners, beyond just putting thoughtless trust in the indication of language levels provided.

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APPENDIX

Transcripts with Codes for *Olivia* (Falconer, 2000)

1. This is [IC] Olivia.
2. She is [IC] good at lots of things.
3. She is [IC] very good at wearing people out.
4. She even wears [IC] herself out.
5. Olivia has [IC] a little brother named [RC] Ian.
6. He's [IC] always copying.
7. Sometimes Ian just won't leave [IC] her alone,
8. so Olivia has [IC] to be firm.
9. Olivia lives [IC] with her mother, her father, her brother, her dog, Perry, and Edwin, the cat.
10. In the morning, after she gets [AVC] up and moves the cat, and brushed her teeth, and combs her ears, and moves the cat, Olivia gets [IC] dressed.
11. She has [IC] to try on everything.
12. On sunny days, Olivia likes [IC] to go to the beach.

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13. She feels [IC] it's [NC] important to come prepared.
14. Last summer when Olivia was [AVC] little, her mother showed [IC] her how to make sand castles.
15. She got [IC] pretty good.
16. Sometimes Olivia likes [IC] to bask in the sun.
17. When her mother sees [AVC] that she's had [NC] enough, they go [IC] home.
18. Every day Olivia is [IC] supposed to take a nap.
19. "It's [NC] time for your you-know-what," her mother says [IC].
    (ellipsis)
20. After a nice bath, and a nice dinner, it's [IC] time for bed.
21. But of course Olivia's [IC] not at all sleepy.
22. "Only five books tonight, Mommy," she says [IC].
    ("No, Olivia, just one.")
    ("How about four?")
    ("Two.")
    ("Three.")
    ("Oh, all right, three.)
23. But that's [IC] it."
    (ellipsis)

Note. Each number denotes one T-unit. The meaning of codes is as follows: IC=independent clause, RC=relative clause, AVC=adverbial clause, NC=nominal clause, ( )=fragment.

Examples in: English
Applicable Languages: English
Applicable Levels: Elementary

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Received in October, 2012
Reviewed in November, 2012
Revised version received in December, 2012

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