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Topic:

Narrative Skills in Diglossic Arabic and the Contribution of Lexical and Syntactic Skills: A Comparison of Kindergarten Children with and Without Developmental Language Disorder

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Introduction

Narrative is a natural tool that provides an abundant source of data about children's language development (Gagarina et al., 2015), especially about lexical and syntactic skills, which narratives are mainly dependent on them (Dickinson, Hofer, & Rivera, 2019). The proposed study will investigate oral narrative skills in Arabic-speaking children with and without developmental language disorder (hereafter, DLD) in kindergarten with a focus on the diglossic reality. That is, co-existence of two linguistic varieties within the same speech community, one is Spoken Arabic (hereafter, SpA) which is acquired as a mother tongue and is used in daily conversations, and another is Modern Standard Arabic (hereafter, MSA), which is used in written and in oral formal settings (Saiegh-Haddad, 2005; 2012). In this context, narrative skills first develop in the language that children use for everyday oral speech, and later these skills transfer to the written modality. In Arabic, the oral language that children use for everyday speech is different from the one used in reading/writing and this linguistic distance is manifested in all domains of language including phonology, morphology, lexicon and syntax. The current study will focus on the lexical and syntactic skills of children and their relationship with narrative skills. The study will investigate narrative skills by testing the macro- and the micro-structure of the narratives produced by children.

Literature Review

1. Narratives Skills

Narrative is described as a natural and culturally valid tool that provides rich information about the narrator's ability to use several linguistic features in one narrative (Burns, de Villiers, Pearson, & Champion, 2012; Cleave, Girolametto, Chen, & Johnson, 2010). In addition to assessing children's linguistic skills in early childhood, research has found narrative competences to predict later academic achievement in school. In particular, if children have the capacity to produce good oral narratives, then they have knowledge to produce good written ones (Griffin, Hemphill, Camp, & Wolf, 2004; Pinto, Tarchi, & Bigozzi, 2016; Zanchi, Zampini, & Fasolo, 2019).

Children's oral narrative skill is usually elicited in two ways: Story generation and story re-telling (Rezzonico et al., 2015). In story generation, a child creates his/her own story in an independent way based on a series of pictures that depict the story, while in story-retelling, a child listens to a story and then s/he is asked to retell it, usually with the help of a series of pictures depicting the story heard (Mäkinen, Soile, Ilaria, & Sari, 2018). Even though the demands of the two formats differ, both require children to produce systematic and coherent stories (Seiger- Gardner, & Almodovar, 2017).

1.2. The Role of Lexical and Syntactic Skills in Narrative Ability

To be able to produce a good narrative, children are required to use syntax and lexicon to form sentences in a proper and meaningful way (Vandewalle, Boets, Boons, Ghesquie`r, & Zink, 2012). Therefore, narrative skills depend mainly on lexical and syntactic skills (Dickinson et al., 2019). Previous research has shown lexical and syntactic skills to predict narrative ability. For instance, Uccelli and Páez (2007) tested narrative skills of English-Spanish bilinguals twice once in kindergarten and again in the first grade using narrative generation tasks and standardized vocabulary tests in English and in Spanish. Narratives were analyzed for productivity indices (total number of words, total number of different words), and quality (story structure, and language score including complex syntax, noun lexicon, and reference clarity). The findings showed significant positive correlations between vocabulary and narrative quality in English and Spanish at both testing points. They suggested that vocabulary and narrative skill may constitute two set of skills that positively affect each other. In the same way, Terry, Mills, Bingham, Mansour, and Marencin (2013) investigated the relationship between oral skills as predictors of narrative performance, using oral expressive vocabulary (Test of Preschool Early Literacy), oral receptive vocabulary (Peabody Picture Vocabulary Test), story comprehension and syntactic complexity (MLU) measures among 5-year-old African American children with TLD. The findings showed significant correlations between lexical and syntactic skills and narrative ability. They suggested that activities aimed to improve children's oral language skills in early school will support their narrative ability. They also stated that it would be very important to understand children's ability to produce narratives in relation to their overall oral language skills.

1.3. Measures of Narrative Skills

Research usually differentiates between two measures in the analysis of narrative development, one is macro-structure, and another one is micro-structure (Kambanaros, Grohmann, Theodorou, & Michaelides, 2014). Both measures have been widely used in assessing children's oral narratives in different populations (Altman, Armon-Lotem, Fichman, & Walters, 2016; Fichman, Altman, Voloskovich, Armon-Lotem, & Walters, 2017; Justice et al., 2006; Kambanaros et al., 2014; Leikin, Ibrahim, & Eghbaria, 2014; Rezzonico et al., 2015; Terry et al., 2013; Tsimpli, Peristeri, & Andreou, 2016). Macro-structure refers to the hierarchal story structure that includes the elements of story grammar (Justice et al., 2006; Schneider, Hayward, & Dubé, 2006; Soodla, & Kikas, 2010; Terry et al., 2013). It mainly consists of the setting, such as background information about the characters and the place, and episode structure, such as GAO schema - Goal, Attempt, and Outcome (McCabe, & Peterson, 1984; Stein, & Glenn, 1975). Micro-structure, on the other hand, refers to the internal linguistic structure of the story (Justice et al., 2006). It includes measures of semantic and syntactic productivity (e.g. number of words and/ or utterances), complexity (e.g. lexical diversity, and/ or use of cohesive devices) and accuracy (e.g. number of correct grammatical utterances). These elements are very indispensable in a story to provide words or utterances that are connected in a coherent way (Hughes, McGillivray, & Schmidek, 1997; Terry et al., 2013).

2. Developmental Language Disorder (DLD)

DLD is defined as a deficit in the production and/or the comprehension of language, without showing hearing, neurological or physical impairment (Bishop, 2006; Leonard, 2014; Marinis, 2011). The prevalence rate of DLD is estimated at around 7% in child population (Law, Boyle, Harris, Harkness, & Nye, 2000; Norbury et al., 2016; Tomblin et al., 1997).

DLD is not homogeneous, but rather involves a range of profiles including marked language difficulties, with normal cognitive abilities (Botting, & Conti-Ramsden, 2003). The language difficulties in children with DLD may be present in some or all aspects of language, such as lexicon, semantic, morpho-syntax, phonology, and pragmatics (Kent, 2004). In regard to lexicon, children with DLD are delayed in acquiring and adding early new words, especially verbs. These lexical limitations, in turn, adversely affect their acquisition of morphology and

sentence structure (Leonard, & Deevy, 2004). Despite the fact that DLD is heterogeneous, difficulties with morpho-syntax are considered as a defining feature of DLD, such as errors in tense-agreement, subject-agreement, past tense –ed, and 3rd person singular (De Jong, 2004; Marinis, 2011). Children with DLD also exhibit difficulties in various measures of phonological processing skills, including measures phonological short-term working memory and phonological awareness (Baddeley, & Wilson, 1993; De Groot, Van den Bos, Van der Meulen, & Minnaert, 2015; Gathercole, & Baddeley, 1990). Moreover, pragmatics is reported to be affected in some populations of DLD, namely, they have difficulties in using language in appropriate context (Bishop, 2000).

Various tasks have been used to screen for the language difficulties in DLD. Bishop, & McDonald (2009) argue that, while non-word repetition, sentence repetition, and verb inflection generation tasks have all been used successfully as reliable markers of DLD, narrative is also a good task that can properly discriminate between children with DLD and TLD. This is because of its nature that places different demands on children to generate utterances that are well-structured, as well as appropriate semantically and syntactically.

2.1. Narrative Skills in Children with Developmental Language Disorder

Narrative is argued to serve as a diagnostic index for DLD (Kambanaros et al., 2014). It can provide a rich source of data on the semantic level, and can reflect the lexicon of children, and their own knowledge of story structure. In addition to their knowledge of syntactic, and sentence-level structure (de Villiers, & de Villiers, 2010; Reese, Sparks, & Suggate, 2012**).**

Cross-linguistic studies have reported that monolingual and bilingual children with DLD demonstrate significant difficulties in oral narratives compared to children with TLD (Altman et al., 2016; Kornev, & Balčiūnienė, 2014; Rezzonico et al., 2015; Squires et al., 2014; Tsimpli et al., 2016). In particular, micro-structure measure is a strong discriminator between TLD and DLD. For instance, children with DLD have been shown to be less competent, and significantly underperform children with TLD in aspects such as lexical diversity, sentence length, verb accuracy, and syntactic complexity (Altman et al., 2016; Liles, Duffy, Merritt, & Purcell, 1995; Rezzonico et al., 2015; Tsimpli et al., 2016). However, the results from measures of macro-structure have been inconsistent across studies. Some studies have showed that macro-structure

is a reliable measure distinguishing monolingual children with and without DLD, as well as bilinguals with and without DLD, especially in using less story grammar elements, and fewer complete episodes (Rezzonico et al., 2015; Schneider et al., 2006; Wagner, Sahlén, & Nettelbladt, 1999). Other studies have found that monolingual children with DLD performed similarly to their TLD age-matched controls in macro-structure, especially in story structure complexity measure in tasks of story generation and re-telling (Dodwell, & Bavin, 2008; Soodla, & Kikas, 2010), as well as in bilingual children in story re-telling tasks (Altman et al., 2016; Tsimpli et al., 2016).

3. Arabic Diglossia

According to Ferguson (1959), the term diglossia: "is a relatively stable language situation in which, in addition to the primary dialects of the language, there is a very divergent, highly codified (often grammatically more complex) superposed variety, the vehicle of a large and respected body of written literature, either of an earlier period or in another speech community, which is learned largely by formal education and is used for most written and formal spoken purposes but is not used by any sector of the community for ordinary conversation" (p.336).

Arabic is a typical case of diglossia. In this context, two linguistic systems are used: Modern Standard Arabic (MSA) and Spoken Arabic (SpA), which are both linguistically related, yet different in all domains of language: Phonological, morpho-syntactic, and lexical-semantic (Saiegh-Haddad, 2004; 2005; 2007; 2012). SpA is the first variety that speakers acquire as a mother tongue and is used in daily conversations. Meaning, Arabic-speaking children grow up speaking and hearing Arabic, which is spoken in their immediate environment, yet also hear MSA in formal contexts, like religious sermons, TV programs, news broadcasts, and also in story and book reading depending on the child's environment. However, MSA is typically described as the school language, in which children start learning to read and write. (Khamis-Dakwar, 2005; Gherwash, 2017; Saiegh-Haddad, 2005, 2012; Shaalan, 2010).

3.1. Arabic Diglossia in Language Development and Representation: Lexical and Syntactic Skills

MSA and SpA are linguistically distant, and this distance is most notable in the phonology and lexicon (Saiegh-Haddad, & Spolsky, 2014), yet it is also marked in the morphology and morpho-syntax (Saiegh-Haddad, Shahbari-Kassem, & Schiff, 2020). Lexical skills are foundational to language development in general.

Saiegh-Haddad and Spolsky (2014) quantified and descried the lexical distance between MSA and SpA among 5-year-old speakers of Palestinian Arabic in Israel. This analysis yielded three categories of lexical items, (1) identical words, which have identical phonological form in MSA and SpA, excluding case marking and inflections that are specific to MSA e.g. , /*na:m*/ 'slept' or /*daftar*/ 'notebook', (2) cognate words, which are used in both varieties, but show partially overlapping phonological forms e.g., /*dahab*/ in SpA= /*ðahab*/ in MSA – 'gold', (3) unique words, which are words that have totally unique lexical-phonological forms in the two varieties e.g., /*juzda:n*/ in SpA/*haqi:ba*/ in MSA – 'bag'. The study quantified the distribution of the three types of words in the lexicons of children and found that only 21.2% of word types collected were identical words, 38.2% unique and 40.6% cognate words.

The distance between MSA and SpA has been found to have different implications on how language is processed and represented in Arabic. That is, psycholinguistic research in Arabic has shown that diglossia affects language representation in MSA. For instance, Saiegh-Haddad and Haj (2018) used a pronunciation accuracy judgement task targeted the three types (identical, cognate and unique words) among Palestinian Arabic-speakers from four age-groups (kindergarten, first, second, and sixth grade). Children were asked to decide if the pronunciation of the target MSA word was correct or not. The findings showed that phonological distance had a significant impact on the quality of phonological representation across all groups. More specifically, they found that the more distant the word was, the less accuracy scores were attained. They also added that even if the word was within the receptive knowledge of the child, the phonological distance could still interfere with the child's ability to encode the accurate phonological representation.

Another major area of linguistic distance between MSA and SpA is syntactic and morpho-syntactic structure. MSA has syntactic features which are not present or different in SpA, such as

dual marking, word order, negation, possessive structure, and inflections. (Ibrahim 1983; Maamouri, 1998; Suleiman, 1985). For instance, negation in MSA is realized in the usage of a pre-verbal marker and the jussive mood marker on the verb, e.g. ***lam*** *ʔaktub* ‘ didn’t write’, while in SpA is realized by using both pre- and post-verbal affixes, e.g. ***ma****katabt****ish*** (Sayahi, 2014). In SpA, there are additional function words or particles that do not have equivalents in MSA, such as in the possessive structure: construct phrase e.g. *fusta:n ʔalbint* in MSA= *ʔalfusta:n tabaʕ ilbinit* in SpA – ‘the girl’s dress’ / possessive pronoun e.g. *kita:buhu* in MSA = *likta:b tabaʕu:* in SpA - ‘ his book’ (Durandin, Strebkov, & Hilal, 2016).

In MSA and SpA, verbs are inflected for tense, person, gender, and number in a different way, and that some inflections may not be present in SpA (Al-Suwaiyan, 2018). In the present tense, verbs are inflected for gender using prefixes: masculine with (*ya*) and feminine with (*ta*) in MSA e.g. *taʔkul* ‘ she eats’ versus (*ya*) *yaʔkul* ‘he eats’, but in some SpA dialects (e.g. Palestinian Arabic) the letter ‘b’ prefix is used e.g. *btukil* for feminine versus *bukil* for masculine.

Although this area has not been thoroughly studied, psycholinguistic research testing the impact of morpho-syntactic distance on language processing shows that this distance impacts syntactic awareness. For instance, Khamis-Dakwar, Froud, & Gordon (2012) used forced-choice grammaticality judgment to examine the morpho-syntactic knowledge of MSA and Palestinian Arabic in typically developing Arabic-speaking children. Two grammatical judgment lists were used, one was in MSA and another one was in Palestinian Arabic. Ten constructions were selected, six represented a mismatch between MSA and SpA, meaning that the constructions are different in each variety (e.g. subject-verb agreement, negation, yes/no questions, dual number marking, relative pronouns and passive). The other four constructions represented a match between both varieties, meaning that these constructions are realized in a similar way in both varieties (e.g. sound plural, adjective definiteness agreement, construct phrases, and wh-questions). The results of the study showed significant differences in children’s performance on the mismatch condition, with children producing higher scores on the constructions presented in the SpA than in MSA, except for negation. However, no significant differences were found in children’s performance of the items in the match condition, in which children performed similarly in MSA and SpA constructions that were overlapping in both varieties, except for the plural marking structure. These results supported the impact of syntactic distance on syntactic knowledge and awareness.

3.2. Narrative Skills in Arabic Diglossia

Even though narratives play a pivotal role in children's language development, only a few studies have addressed narrative ability in Arabic diglossia.

Leikin and Colleagues (2014) studied re-telling ability among kindergarten Arabic speaking children with TLD. They asked children to re-tell two stories: one read to them in MSA, and another in SpA. Both re-telling conditions were accompanied by illustrations. The study examined a set of micro-structure measures (total number of words, number of net words - complete words without repetition, fluency as the difference between total number of words and net words, number of clauses, average length of clauses, and morpho-syntactic errors, as well as number of nouns, verbs and adjectives and the lexical match to MSA), and macro-structure measures (story opening and ending, content units, first recall of characters, and referential ambiguity). The findings showed better performance for re-telling in SpA for micro-structure in the use of nouns and verbs, fluency, clause length, morpho-syntactic errors, and for macro-structure in the use of content units. The authors suggested that the "linguistic gap" between MSA and SpA affects mastering different linguistic structures in both varieties. At the same time, they noticed that although exposure to MSA is limited, kindergarten children used linguistic structures from MSA. This was argued to be attributed to parents' awareness of early exposure of MSA and to children's exposure of TV shows and programs presented in MSA.

Another study conducted by Ravid, Naoum and Nasser (2014) used a re-tell task told in MSA to speakers of Palestinian Arabic from seven age groups (nursery to adulthood). They examined different narrative measures, including text length, content units, morpho-syntactic errors, mean clause length, referencing, and lexical items. The findings showed that school-age affected narrative re-tell; stories included more MSA lexicon and morpho-syntax, and fewer errors as age increased, suggesting that Arabic speakers consolidate their narrative abilities as a result of their exposure to MSA.

Furthermore, Kawar, Walters and Fine (2019) investigated oral personal narrative among native speakers of Palestinian Arabic from grades 6-10 with and without hearing loss. They examined macro-structure (including abstract, orientation, complication, evaluation, resolution and coda), micro-structure (including morpho-syntax and complex sentences) and use of MSA features (lexis and syntax). The findings showed that speakers with hearing loss underperformed those

with typical hearing in terms of evaluation, and that their narratives contained more morpho-syntactic errors, fewer complex sentences and fewer expressions of MSA. Although the use of MSA was limited in personal narratives, the results showed differences between the two groups in use of MSA. The authors argued that this could be due to greater exposure of MSA and linguistic ability, especially in the area of MSA morpho-syntax.

The Current Study

The objective of the current study is threefold. First, to assess the extent to which children with DLD differ from TLD age-matched controls in narrative ability (generation and re-telling) at the level of macro- and mirco-structure. Second, to investigate the use of MSA lexical and syntactic features in children with and without DLD. Third, to test the contribution of lexical and syntactic skills to narrative performance. Therefore, the current study attempts to provide a thorough understanding of Arabic-Speaking children with DLD, and their narrative performance in Arabic diglossia, as well as to offer possible implications for professionals working in kindergartens with children with DLD.

Research Questions & Hypotheses

Research Questions

1. To what extent do children with and without DLD differ in the use of macro- and micro-structure components in narrative ability (story generation and re-telling)?
2. To what extent do children with and without DLD differ in the use of MSA lexical and syntactic features in narrative ability (story generation and re-telling)?
3. To what extent do lexical and syntactic features in Arabic predict narrative performance in narrative ability (story generation and re-telling) in children with and without DLD?

Hypotheses:

Macro- and micro-structure: We hypothesize that children with DLD will significantly underperform their TLD age-matched controls in macro- and micro-structure in both narrative elicitation formats (story generation and story re-telling). Children with DLD are found to produce less components of macro- and micro-structure, in which children are required to use accurate lexicon and morpho-syntax, as well as knowledge of story-structure to produce narratives in a coherent way (de Villiers, & de Villiers, 2010; Reese et al., 2012).

Use of MSA: We hypothesize that children with TLD will use MSA in a higher ratio in narrative production as compared to DLD, especially in story re-telling heard in MSA. Children with DLD have a deficit in the production or the comprehension of language, or in both (Leonard, 2014), and that SpA is children's mother and dominant language, in which its structure is easier to access and process than MSA (Schiff, & Saiegh-Haddad, 2018). Therefore, children with DLD are expected to produce less MSA features.

Lexical and syntactic contribution to narrative performance: We hypothesize that lexical and syntactic skills in Arabic will be correlated with narrative performance in both groups of children. Lexicon and syntax are crucial in narrative production, in which children need to use their lexical and syntactic skills to produce a good narrative (Vandewalle et al., 2012).

Methodology

Participants

The population of the study will consist of children who are native speakers of a Palestinian Arabic (PA) dialect from the northern triangle in Israel. A total of 50 kindergarten children will participate in the study and divided into two groups: 25 children with typical language development (TLD) recruited from public kindergartens, and 25 children diagnosed with developmental language disorder (DLD) recruited from language kindergarten centers for children with developmental disorders. Those with hearing, psychological, behavioral or neurological problems will be excluded. Approval of Ministry of Education - Chief Scientist Office, and parental consent will be obtained prior to data collection.

ALEF Screening for Developmental Language Disorder

The ALEF (Arabic Language: Evaluation of Function) will be used to screen language disorders among children with DLD in comparison to age-matched children with TLD. A battery of screening tests will be administered to all participants prior to conducting the experimental tasks. All tests were adapted by (Saiegh-Haddad & Ghawi-Dakwar, 2017) to Palestinian Arabic speakers from the original ALEF that was created by a team from the U.S and was then validated by testing children from Saudi Arabia aged from 3 to 9 years (Kornilov, Rakhlin, Aljughaiman, & Grigorenko, 2016). The screening tests include: Expressive vocabulary, receptive vocabulary, word articulation, sentence comprehension, sentence completion, sentence imitation, non-word

repetition, non-word discrimination, digit span, and rapid automatized naming. These tests tap into various linguistic domains at the expressive and receptive level.

Experimental Tasks

Narrative ability - two tasks will be used to assess children's narrative skills:

- Story generation: Children will be asked to tell a story from a set of 6 pictures shown in a sequence. The story that will be used is the LITMUS-MAIN "The Boy and The Dog" narrative (Gagarina et al., 2015).
- Story re-telling: Children will be asked to re-tell a story to be told to them in Modern Standard Arabic (MSA) based on six pictures shown in a sequence. The story to be used will the LITMUS-MAIN "Baby Birds" narrative (Gagarina et al., 2015).

These stories were designed to provide experimenters with three formats for narrative elicitation, namely, story generation, re-telling, and telling after a model story. Both stories consist of 6 pictures, and three episodes (two pictures for each episode). They include animate characters, and both are matched in terms of the number of main protagonists, and GAO schema (Goal, attempt and outcome), as well as the structure of the plot and actions. Moreover, they were controlled for macro- and micro-structure features, and cultural appropriateness.

Lexical ability - two tasks will be used to assess children's lexical skills:

- Expressive vocabulary – noun & verb naming: Children will be asked to name 27 nouns and 27 verbs in a single word represented in colored pictures shown in a Power Point Presentation (PPT).
- Receptive vocabulary – noun & verb comprehension: Children will be asked to choose one picture depicting the noun or verb heard from the experimenter out of four colored pictures shown in a Power Point Presentation (PPT).

Both lexical tasks were adapted from LITMUS-CLT (Language Impairment Testing in Multilingual Settings – Cross-linguistic Lexical Tasks) which was developed in COST Action IS0804 (Haman, Luniewska, & Pomiechowska, 2015) and then adapted to Palestinian Arabic speakers. LITMUS-CLT was developed to assess expressive and receptive knowledge of nouns and verbs in bilingual children across languages through picture-based test. CLT has been found to be a useful tool for identifying DLD, distinguishing between monolingual and bilingual TLD and DLD (examples from Slovak- Kapalková, & Slančová, 2017; Lebanese Arabic-Khoury Aouad Saliby, Dos Santos, Kouba Hriech, & Messarra, 2017).

Syntactic ability - one task will be used to assess children's syntactic skills:

- Sentence Repetition: Children will be asked to repeat the sentences as heard by the experimenter. This task was adapted to Palestinian Arabic-Speaking Children (Saiegh-Haddad, Halabi, & Armon-Lotem, 2019) according to the principles developed in COST Action IS0804 (Marinis, & Armon-Lotem, 2015). It includes 36 sentences that depict a variety of syntactic structures (word order, negation, coordination, subject-question, object-question, temporal, relative clause-subject, relative clause-object, and conditional).

Procedure

All children will be tested individually in a quiet room in their kindergartners in different sessions. First, ALEF tests will be administered in 4-5 sessions. Then, the experimental tasks will be conducted in two sessions. In the first session, children will be tested in lexical and syntactic tasks. In the second session, they will be tested in narrative tasks, and will be audio-recorded. In this session, children will be asked to look at the pictures of "the boy and the dog" and tell a story. Then, they will be asked to hear the story of "baby birds" in MSA and re-tell it. In both tasks, children will be asked to tell the stories without explicit instructions of using a particular variety (MSA or SpA). All instructions during the tasks will be given by the experimenter in SpA.

Data Analysis

Narratives will be coded for the use of macro- and micro-structure, and the use of MSA. *Macro-structure* will be analyzed by episode structure in each story according to LITMUS MAIN, namely, setting, goal-attempt-outcome in each episode out of three episodes, and story ending. Scoring will be based on correct mention of each element (1) and not mention (0), with no partial scores. *Micro-structure* will be analyzed by language productivity, complexity, and accuracy, namely, narrative length in words and total number of different words (productivity), lexical diversity (complexity), and subject-verb agreement errors (accuracy).

MSA will be analyzed by lexical and syntactic features (details in tables 1 and 2). Lexical: Identical, cognate and unique categories for nouns, verbs and adjectives. Syntactic constructions: negation, verb conjugation, and possessive structure. Scoring will be also based on correct mention of MSA feature/construction (1) and not mention (0), with no partial scores. Lexical and syntactic tasks will be scored as correct and incorrect answers, and no partial scores will be

given.

Table 1: Examples of lexical, cognate and unique lexical categories

	Identical	**Cognate**	**Unique**
Nouns	ولد /*walad*/ 'boy'	كَلْبْ /*kalb*/ 'dog' in MSA. In SpA كَلِبْ /*kalib*/	قط /*qitˁ*/ 'cat' in MSA. In SpA بِس /*bis*/
Verbs	طار /*tˁa:r* / 'fly'	يَمنع /*yamnaʕ*/ 'prevent' in MSA. In SpA بِمنع /*bimnaʕ*/	أرادَ /*ʔra:da*/ 'want' in MSA. In SpA بدو /*bidu:*/
Adjectives	سريع /*sari:ʕ*/ 'fast'	جائع /*ğa:ʔiʕ*/ 'hungry' in MSA. In SpA جَعان /*ğaʕa:n*/	لذيذ /*laði:ð*/ 'delicious' in MSA. In SpA زاكي /*za:ki*:/

Table 2: Example of syntactic structures in MSA and SpA

	MSA	**SpA**
Negation	لم تنتبه للقط / ***lam*** *tantabih lilqit*/ 'didn't pay attention to the cat'	منتبهتش للبس/ ***ma****ntabhat****ish*** *lalbis*/ 'didn't pay attention to the cat'
Verb Conjugation	يأكل الفرخ الصغير / ***yaʔkul*** *ʔalfarx ʔalsˁaɣi:r* / '(He) eats the little chick'	بوكل الفرخ لصغير / *bukil ʔalfarix lisˁɣi:r* / '(He) eats the little chick'
Possessive structure	فراخها / ***firaxuha***:/ 'her chicks'	لفراخ تبعتها / ***lifra:x tabʕitha:***/ ' her chicks'

Statistical Analysis

Descriptive statistics will be used to provide summary statistics of means and standard deviations. Independent T-Tests and a 2x2 ANOVA (group: TLD versus DLD; condition: story generation versus story re-telling) will be used to compare the performance of children with DLD to their TLD age-matched controls in both tasks at the level of macro-and micro-structure components, and the use of MSA lexical and syntactic features. Pearson correlation and regression models will be conducted to test the contribution of lexical and syntactic tasks to narrative performance in both formats, story generation and story re-telling.

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