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A Comparison of Storytelling Skills between Preschool Children at Risk for Learning Disabilities and Typically Developing Children

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This study was derived from the doctoral dissertation of the first author, conducted under the supervision of the second author.

Objectives: This study aimed to compare the story retelling and story generation skills of preschool children at risk for learning disabilities and typically developing peers in terms of macro- and microstructural narrative features. In addition, the study examined the relationships between children's narrative performance and their verbal working memory and rapid automatized naming abilities. **Methods:** The study group consisted of 52 preschool children aged 60–72 months, including 26 identified as being at risk for learning disabilities and 26 typically developing children. A comparative and correlational research design was employed to examine group differences in narrative performance. Story retelling data were collected using the wordless picture book Frog, Where Are You?, while story-generation data were obtained using Good Night, Gorilla. Macrostructural features were assessed using the Narrative Scoring Scheme, and microstructural features were analyzed using the Systematic Analysis of Language Transcripts software. **Results:** Children in the learning disability risk group demonstrated significantly lower macro- and microstructural performance in both story retelling and story generation compared to their typically developing peers. Moderate positive associations were observed between children's verbal working memory and macrostructural narrative scores in both groups. In the typically developing group, verbal working memory was also associated with microstructural indicators such as lexical diversity and total word count. **Conclusion:** These findings highlight the importance of narrative skills as a potential early indicator of risk for learning disabilities and support the inclusion of narrative-based assessments in early screening procedures.

Keywords: Narrative, Storytelling, Story generation, Retelling stories, Learning disability risk group, Typically developing children

Narrative is a complex, multidimensional skill that emerges during early childhood and reflects children's language development (Heilmann et al., 2010). Narrative skills require children to integrate grammatical competence, syntactic structures, lexical diversity, and discourse organization abilities (Bishop & Snowling, 2004; Heilmann et al., 2010). In this regard, narrative production is not merely an oral transmission; rather, it is a higher-order linguistic and cognitive process that requires a holistic understanding of the causal and temporal organization of events as well as the internal and external states of characters (Heilmann et al., 2010; Westby, 2012).

Research has demonstrated that children who are proficient in narrative during the preschool period achieve greater success in fundamental academic skills such as reading and writing and exhibit more positive social interactions during the transition to school (e.g., Bartl-Pokorny et al., 2013; Bleses et al., 2016). In this context, well-developed narrative skills in early childhood are significant predictors of later academic achievement and social ad-

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justment (Griffin et al., 2004; Suggate et al., 2018). These findings underscore the importance of assessing narrative skills during early childhood.

Narrative skills are widely used to evaluate children's expressive language, discourse organization, and the relationship between language and cognition during the preschool years and the early years of primary school. A comprehensive assessment of narrative abilities requires the simultaneous examination of both macrostructural and microstructural features. Macrostructure reflects children's cognitive abilities to plan and organize a narrative (i.e., story schema), whereas microstructure indicates the extent to which this plan can be competently expressed at the grammatical and lexical levels (e.g., lexical diversity and sentence complexity). Studies conducted with Typically Developing (TD) preschool children have shown that narrative skills develop with age and that narratives become increasingly complex at both the macrostructural and microstructural levels (Berman & Slobin, 1994; Justice et al., 2006). In contrast, previous research has reported that primary school children with Learning Disabilities (LD) and Reading Disabilities (RD) exhibit lower narrative performance compared to their TD peers (Humphries et al., 2004; Seçkin-Yılmaz & Güler, 2019; Westerveld et al., 2008). Although these differences have been established through studies with children in primary school populations, no studies have comprehensively and directly compared the narrative skills of preschool children at Risk for Learning Disabilities (RLD) with their TD peers. Existing studies have either focused exclusively on the macrostructural dimension (Fey et al., 2004) and were conducted within narrow age ranges (Heilmann et al., 2010) or have presented findings specific to different language groups. This methodological and theoretical gap is particularly significant because narrative skills undergo rapid development during the preschool years, and early differences in narrative organization and linguistic expression may serve as indicators of later language and literacy difficulties (Petersen & Spencer, 2012; Piştav-Akmeşe, 2015).

Considering the structural properties of the target language is of great importance in the assessment of narrative skills. Turkish differs substantially from languages such as English due to its structural features, including rich inflectional morphology, free word order, and pro-drop characteristics (Acarlar & Johnston, 2011; Aksu-Koç, 1994; Güven & Leonard, 2023; Ögel-Balaban & Hohenberger, 2020). These features have a direct impact on children's language acquisition processes. The tense, aspect, and person morphemes affixed to verbs in Turkish directly influence both the microstructural complexity and the information density of children's narratives. In addition, subject use patterns and conjunction usage patterns in Turkish shape cohesion strategies, revealing the limitations of directly transferring English-centered narrative assessment frameworks to Turkish (Aksu-Koç, 1988; Berman & Slobin, 1994). Therefore, examining narrative skills in Turkish-speaking children is also considered an important issue in terms of understanding language-specific morphological and syntactic developmental patterns. In particular, the pro-drop nature of Turkish, which allows frequent subject omission and relies on contextual cues for reference tracking, may pose additional challenges for maintaining referential cohesion during narrative production. Similarly, the morphologically rich structure of Turkish, in which grammatical and semantic information is densely encoded through inflectional suffixes, may place heightened processing demands on children with limited cognitive and linguistic resources, potentially exacerbating narrative difficulties in children with RLD.

Another limitation of the existing literature is that many studies have primarily focused on the macrostructural aspects of narrative. To determine whether the narrative difficulties observed in children with RLD stem primarily from challenges in cognitive organization or from difficulties in linguistic expression, it is important to examine both macrostructural and microstructural components simultaneously. Such information can provide important insights for the design of intervention programs. Therefore, examining narrative skills in preschool children with RLD in terms of both macrostructural and microstructural features can offer insights toward the early identification of children who may experience language and literacy difficulties in the future and the development of appropriate intervention programs.

Narrative is also an indicator of language skills and cognitive abilities. Findings in the literature reveal that different cognitive processes are associated with different dimensions of narrative performance. Working memory capacity demonstrates a strong relationship with macrostructural performance, which particu-

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larly requires the temporal and causal organization of events. Children with limited working memory capacity experience greater difficulty in producing structurally coherent narratives (Kida et al., 2015; Veraksa et al., 2020). When the comparative effects of verbal and visual working memory are examined, verbal working memory appears to play a more prominent role than visual working memory in supporting narrative language skills (Veraksa et al., 2020). At the microstructural level, rapid automatized naming skills contribute to narrative quality by enhancing lexical diversity and supporting the development of a broader linguistic repertoire (Wood et al., 2018). However, these relationships are not linear or unidirectional. Different cognitive processes contribute to different layers of narrative at varying levels (Bishop & Edmundson, 1987; Gilkerson et al., 2018; Zauche et al., 2016).

The relationship between narrative skills and cognitive processes has been examined in various groups, including children with language disorders (Diehm et al., 2020), children with intellectual disabilities (Rungrojsuwan, 2024), and bilingual children (Pinto et al., 2018), as well as in typically developing children (Lindgren, 2023). Nevertheless, no studies were identified that examined the narrative skills of preschool children with RLD in conjunction with cognitive processes and within a language-specific context. In this regard, the present study compared the story retelling and story generation skills of Turkish-speaking preschool children with RLD with their TD peers in terms of macrostructural and microstructural features. In the present study, preschool children with RLD were operationally defined as five-year-old children who (a) demonstrated below-cut-off performance on verbal short-term and verbal working memory tasks and slower-than-average performance on rapid automatized naming, while (b) showing performance within or above the average range on standardized language (TELD-3) and nonverbal reasoning (Raven CPM) measures. This profile reflects a cognitive-processing-based risk pattern documented in the Turkish learning-disabilities risk literature (Ergül et al., 2018) and is consistent with international risk-identification frameworks that emphasize verbal working memory and rapid naming as core predictors of later learning difficulties (Pennington & Bishop, 2009). This operational definition was applied to ensure that children classified as RLD did not present with primary language impairment or general cognitive delay, but rather with a specific cognitive-processing risk profile. Furthermore, the study examined the role of verbal processing skills in children's performance across different narrative tasks. Specifically, the relationships between children's macrostructural and microstructural narrative scores obtained from story retelling and story generation tasks and their verbal short-term memory, verbal working memory, and rapid automatized naming skills were investigated.

In light of the existing literature, two primary expectations were formulated. First, children with RLD are expected to demonstrate lower narrative performance compared to their TD peers at both the macrostructural and microstructural levels; however, these differences are anticipated to be more pronounced at the microstructural level (Fey et al., 2004; Heilmann et al., 2010). Second, verbal processing skills—particularly verbal working memory and rapid automatized naming—are expected to show significant relationships with narrative performance, and these relationships are expected to differ between the at-risk for LD and TD groups (Kida et al., 2015; Veraksa et al., 2020; Wood et al., 2018).

Accordingly, the present study addressed the following research questions:

1. Do preschool children with RLD differ from their TD peers in terms of macrostructural and microstructural narrative performance in story retelling and story generation tasks?

2. What are the relationships between children's narrative performance (macrostructure and microstructure) and their verbal short-term memory, verbal working memory, and rapid automatized naming skills?

METHODS

Research Model

A comparative correlational design was employed to compare children's story-generation and story-retelling performance across groups and to examine the relationships between narrative skills, working memory, and rapid automatized naming.

Study Group

The study group comprised 52 children aged 60–72 months from middle- and upper-socioeconomic backgrounds attending

independent preschools in a province in Turkey. Independent preschools affiliated with the Ministry of National Education (MoNE) are defined as educational institutions established to provide preschool education to children within a specific age range (typically 36–68 months), possessing their own administrative structure, building, and playground, and not being physically or administratively affiliated with another school (MoNE, 2014). Participants were selected from five-year-old classrooms in six independent kindergartens. The study group was divided into two groups: the RLD group (n = 26; 10 girls, 16 boys; M = 68.07, SD = 2.22, Min = 63.00, Max = 71.00) and the TD group (n = 26; 13 girls, 13 boys; M = 64.53, SD = 3.07, Min = 61.00, Max = 71.00).

Participants were screened using the Rapid Automatized Naming (RAN) (Ergül & Demir, 2018) and the Working Memory Scale (WMS) (Ergül et al., 2018). The Verbal Short-Term Memory and Verbal Working Memory subtests, the Turkish adaptation of Raven's Coloured Progressive Matrices (Bildiren et al., 2017), and the Test of Early Language Development-Third Edition (TELD-3) (Güven & Topbaş, 2014) were administered. Children were assigned to the RLD group based on the following criteria: a) scoring at an average or below-average speed on the Object and Colour subtests of the RAN; b) scoring below the cut-off point on the Verbal Short-Term Memory and Verbal Working Memory subtests of the WMS; c) scoring at or above average on the Raven Coloured Progressive Matrices Test; and d) scoring within or above the average range (standard score ≥ 85) on the TELD-3 Verbal Language Composite standard score. Criterion (a) was intentionally inclusive of average-range naming speed: because RAN served as a converging rather than a decisive indicator, children performing at an average speed could be assigned to the RLD group only if they also scored below the cut-off points on the Verbal Short-Term Memory and Verbal Working Memory subtests (criterion b), whereas children with above-average (fast) naming speed were not included in the RLD group. The rationale for criterion (d) is as follows. The TELD-3 cut-off of standard score ≥ 85 (i.e., within or above the average range, based on a mean of 100 and standard deviation of 15) was applied to rule out the presence of a primary language disorder among children classified as RLD, thereby ensuring that the observed narrative difficulties reflect a cognitive-processing risk profile rather than an underlying language impairment. This criterion is consistent with the diagnostic principle that learning disabilities and language disorders, while frequently co-occurring, represent conceptually distinct constructs (American Psychiatric Association, 2013; Pennington & Bishop, 2009). Although the RLD group's mean TELD-3 scores were statistically lower than those of the TD group (Table 1), all participants in the RLD group performed within or above the average range on standardized language measures (i.e., no participant scored more than one standard deviation below the mean). The between-group difference in TELD-3 scores therefore reflects a relative difference within the broader average range, rather than a difference between language-impaired and language-typical children.

Table 1. Comparison of WMS, RAN, Raven, and TELD-3 scores between children with RLD and TD

	Group	n	M	SD	SE	*t*	df	*p*	Cohen's *d*
Verbal WM	TD	26	583.57	57.32	11.24	14.52	50	<.001	4.028
	RLD	26	412.03	18.47	3.62				
TELD-3 Receptive Language	TD	26	106.34	8.14	1.59	9.21	50	<.001	2.556
	RLD	26	89.61	4.40	.863				
TELD-3 Expressive Language	TD	26	106.76	7.44	1.46	10.71	50	<.001	2.971
	RLD	26	85.38	6.94	1.36				
Raven	TD	26	73.46	14.74	2.89	1.74	50	.088	.483
	RLD	26	66.53	13.91	2.72				
RAN Objects	TD	26	60.50	7.32	1.44	10.29	50	<.001	2.854
	RLD	26	89.34	12.27	2.41				
RAN Colors	TD	26	66.03	8.18	1.60	10.06	50	<.001	2.792
	RLD	26	101.00	15.70	3.07				

TD = Typically developing; RLD = Risk for learning disabilities; WMS = Working memory scale (Ergül et al., 2018); RAN = Rapid automatized naming (Ergül & Demir, 2018); TELD-3 = Test of early language development-third edition (Güven & Topbaş, 2014).

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For the TD group, the following criteria were applied: a) scoring at an average speed on the Object and Colour subtests of the RAN; and b) scoring above the cut-off point in the Verbal Short-Term Memory and Verbal Working Memory subtests of the WMS.

Initially, data were collected from 60 children. Of these, 26 children met the criteria for the RLD group and 26 met the criteria for the TD group and were included in the study. The comparative results of the test scores obtained from the participating children are presented in Table 1.

Mean scores and standard deviations for all measures are presented in Table 1. Mean verbal working memory scores were significantly higher in the TD group (M = 583.57, SD = 57.32) than in the RLD group (M = 412.03, SD = 18.47). Similarly, the TD group outperformed the RLD group on both TELD-3 receptive language (M = 106.34, SD = 8.14 vs. M = 89.61, SD = 4.40) and expressive language (M = 106.76, SD = 7.44 vs. M = 85.38, SD = 6.94), with statistically significant differences observed for both subtests. In contrast, mean Raven nonverbal reasoning scores did not differ significantly between the TD (M = 73.46, SD = 14.74) and RLD (M = 66.53, SD = 13.91) groups. For rapid automatized naming, mean RAN Objects scores were 89.34 (SD = 12.27) in the RLD group and 60.50 (SD = 7.32) in the TD group, while mean RAN Colour scores were 101.00 (SD = 15.70) and 66.03 (SD = 8.18), respectively. Overall, these findings indicate that the RLD and TD groups differed significantly in verbal working memory and language skills, whereas comparable performance on the Raven test suggests similar levels of nonverbal cognitive functioning across groups.

Measures

The measures used to identify participants and assess the study variables are described below.

Working memory scale (WMS)

Developed by Ergül et al. (2018), this scale measures verbal and visual working memory. The Verbal Memory dimension comprises the Number Recall, Word Recall, and Nonsense Word Recall subtests; the Visual Memory dimension comprises the Pattern Matrix and Block Recall subtests. For the purposes of the present study, the Verbal Short-Term Memory and Verbal Working Memory subtests of the WMS were used. The Cronbach's alpha coefficient for these subtests was .65.

Turkish early language development test (TELD–3)

The Test of Early Language Development-Third Edition (TELD-3) was adapted into Turkish in 2005 and finalised in 2009. The test includes items assessing semantic knowledge, morphology, and syntax (Güven & Topbaş, 2014). The reliability analysis of TELD-3 was conducted within the scope of the present study, and the Cronbach Alpha values were .756 for TELD-3-Receptive Language and .948 for TELD-3-Expressive Language.

Rapid automatized naming (RAN)

This test, which assesses children's speed of access to lexical information in memory, comprises four subtests: object, colour, letter, and number naming. The test's content validity was assessed through expert judgment, and its construct validity was supported by Exploratory and Confirmatory Factor Analyses. Test–retest coefficients range from .83 to .95 (Ergül & Demir, 2018). The RAN Objects and RAN Colour subtests were used in the study. Cronbach's alpha coefficients obtained in the present study were as follows: RAN Object: .757; RAN Colour: .766.

Raven coloured progressive matrices test

The Raven Coloured Progressive Matrices Test was adapted into Turkish by Bildiren et al. (2017) and standardized for children aged 4–6 years. The Turkish version has been reported to be a valid and reliable measure of nonverbal intelligence for children in this age group. The test comprises 36 items and requires the child to identify the missing piece in a pattern from among the options. The total score from correct answers is converted into a percentile, and the child's mental level is classified into categories such as superior, average or below average.

Retelling the story

The wordless picture book *Frog, Where Are You?* by Mayer (1969) was used to assess children's retelling skills. The story follows a child's adventure to find his lost frog. Children listened to a standardized audio recording of the story, narrated entirely in Turkish by a male native Turkish speaker, while simultaneously

viewing the corresponding pages of the book. After the recording ended, children were asked to retell the story in Turkish by examining the pictures.

Story generation

Good Night, Gorilla, written by Peggy Rathmann (1994), was used to assess children's story-generation skills. The story features short texts in speech bubbles, these speech bubbles were covered during administration so that only the illustrations were visible to the children and children were asked to create an original story in Turkish based on the pictures. Prior to data collection, the classroom teachers of all participating children were consulted to confirm that Good Night, Gorilla was not part of their classroom reading materials and that, to their knowledge, none of the children had previously encountered the book in either Turkish or English versions. In addition, during the introductory familiarization activities conducted prior to data collection, children were not exposed to the book or its illustrations. This precaution was taken because prior familiarity with the story content could have influenced children's story-generation performance, particularly with respect to inferring characters' goals, emotional states, and the resolution of the narrative. All assessment materials and instructions, as well as children's responses, were in Turkish (i.e., the native language of all participants and of the first author, who administered all tasks). All narratives were audio-recorded for subsequent analysis.

Data Collection

The data collection process lasted 14 weeks and was structured into three main stages. First, introductory activities (e.g., Musical Games, Balloon Carrying Game) were organised in 22 classrooms across six kindergartens to help 525 children become familiar with the researcher and reduce assessment anxiety. Secondly, a pilot study was conducted with four children (two RLD, two TD) who were not part of the study group. Based on the pilot study findings, short conversations were added between tests, and 7-8-minute structured games (e.g., jigsaw puzzles, ball rolling) were added between the two narrative tasks to finalise the protocol. Inter-rater reliability was calculated using 30% of the study data. Reliability coefficients were .98 for the macro structure of the narrative and .87 for the microstructure, according to the SALT guidelines.

In the final stage, the study data were collected in quiet rooms provided by the schools, individually in a single session. Two different narrative tasks were administered during the sessions: participants listened to a standard audio recording accompanied by pictures from the book Frog, Where Are You? (Mayer, 1969) and were then asked to retell the story. After a break, participants were shown pictures from the wordless picture book Good Night, Gorilla (Rathmann, 1994) and asked to create a story based on the pictures in the book. The two narrative tasks were administered in a fixed order (story retelling first, story generation second) for all participants, for the following methodological reasons. First, the two tasks differ in their cognitive and linguistic demands. Story retelling provides children with a model narrative as a scaffold, whereas story generation requires children to construct a narrative independently from pictures alone. Beginning with the scaffolded retelling task allowed children to become familiar with the narrative production demands of the session before engaging in the more cognitively demanding story-generation task, thereby reducing the risk of task refusal in the more demanding task—an important consideration with five-year-old children. Second, the two tasks used different stimulus materials (Frog, Where Are You? and Good Night, Gorilla), thereby eliminating direct content carryover between tasks.

Scoring of the Data

Children's narrative skills were analysed in terms of macro- and microstructural components. Two different rubrics were used for the macrostructural assessment. The narratives obtained from retellings were evaluated using the Narrative Scoring Scheme (NSS) developed by Heilmann, Miller, Nockerts, and Dunaway (2010). This scoring system was specifically designed for Mercer Mayer's wordless picture book *Frog, Where Are You?* and is widely used in international literature.

A new rubric was developed to evaluate the narratives produced during the story-generation task. The rubric was based on the NSS rubric for Frog, Where Are You? and was structured to include seven features: introduction, character development, mental and emotional states, referencing/audience awareness, conflict/resolution (event/reaction), flow and coherence, and conclusion. Each

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feature was scored as minimal/immature (1 point), emerging (2 points), or proficient (3 points), yielding a maximum total score of 21. To establish content validity, an evaluation form was prepared and sent to 16 experts who specialized in special education and early childhood education and had research expertise in early literacy, language and communication, picture books, and interactive book reading. The scanned book was provided to the experts together with the rubric. Of the 16 experts, 12 returned the form. Content validity was calculated using Lawshe's (1975) technique, in which each item is rated as "*the item measures the targeted construct*", "*the item is related to the construct but unnecessary*" or "*the item does not measure the targeted construct*" (as cited in Yurdugül, 2005). The Content Validity Ratio (CVR) for each item was computed as the number of experts rating the item as essential divided by half the total number of experts who provided an opinion, minus one. Minimum CVR values were determined using the table established by Veneziano and Hooper (1997), for 12 experts, the minimum acceptable CVR is .56. Based on the experts' feedback, the content validity of the rubric was calculated as .75. The full rubric is provided as Appendix 1.

For the microstructure assessment, the basic linguistic characteristics of the stories were examined, including total number of words, mean length of utterance, and lexical diversity. All microstructure analyses were conducted using the SALT software.

Data Analysis

Normality was assessed by examining skewness and kurtosis values. The values indicated that the assumption of normality was met (Field, 2018). An independent samples *t*-test was conducted to examine whether TD children and children with RLD differed in their story-generation and story-retelling skills. In addition, Pearson correlation analysis was used to examine the relationships between children's working memory, rapid naming scores, and narrative skills. All analyses were performed using the jamovi statistical software. The significance level was set at $p < .05$.

This study was approved by the Gazi University Ethics Commission (decision dated September 5, 2023, meeting no. 15, document no. E.743879). Official research permission was obtained

Table 2. Comparison of macro- and microstructure scores of children in the RLD and TD groups for story retelling and generation

	Group	n	M	SD	*t*	df	*p*	Cohen's *d*
SR-Macro	TD	26	30.34	3.39	14.85	50	<.001	4.119
	RLD	26	19.03	1.88				
SR-MLU-w	TD	26	5.64	.53	12.15	50	<.001	3.370
	RLD	26	3.75	.59				
SR-MLU-m	TD	26	9.74	.86	13.42	50	<.001	3.721
	RLD	26	6.49	.89				
SR-TNW	TD	26	222.92	52.04	9.053	50	<.001	2.511
	RLD	26	124.03	19.84				
SR-NDW	TD	26	95.38	18.69	5.616	50	<.001	1.557
	RLD	26	71.50	10.99				
SG-Macro	TD	26	19.07	1.35	16.43	50	<.001	4.557
	RLD	26	12.73	1.42				
SG-MLU-w	TD	26	5.95	.64	14.03	50	<.001	3.891
	RLD	26	3.32	.71				
SG-MLU-m	TD	26	10.31	1.02	16.61	50	<.001	4.608
	RLD	26	5.77	.94				
SG-TNW	TD	26	186.30	36.24	8.60	50	<.001	2.384
	RLD	26	115.96	20.60				
SG-NDW	TD	26	82.46	13.50	5.9	50	<.001	1.637
	RLD	26	63.73	8.91				

SR-Macro = Story retelling macrostructure score; SR-MLU-w = Story retelling mean length of utterance (in words); SR-MLU-m = Story retelling mean length of utterance (in morphemes); SR-TNW = Story retelling total number of words; SR-NDW = Story retell number of different words; SG-Macro = Story generation macrostructure score; SG-MLU-w = Story generation mean length of utterance (in words); SG-MLU-m = Story generation mean length of utterance (in morphemes); SG-TNW = Story generation total number of words; SG-NDW = Story generation number of different words; TD = Typically developing; RLD = Risk for learning disabilities.

from the Provincial Directorate of National Education (dated October 18, 2023, no. E.778630), and written informed consent was obtained from the parents of all participating children.

RESULTS

This section presents findings from descriptive and comparative analyses of the language and cognitive skills of preschool children with RLD and TD. Children's performance on the WMS, RAN, Raven Coloured Progressive Matrices Test, TELD-3, story retelling, and story generation was examined using an independent-samples *t*-test, and the relationships among the variables were evaluated using correlation analyses. Table 2 presents the results of the independent samples *t*-test comparing the RLD and TD groups on narrative measures.

As shown in Table 2, these differences were also statistically significant, and the TD group scored higher than the RLD group across all measures. These findings indicate that TD children performed better than the RLD group in both retelling and story generation.

As shown in Table 3, verbal WMS scores of children with RLD showed a moderate positive correlation with SR-Macro ($r = .424$, $p = .031$) and a low positive correlation with SG-Macro ($r = .396$, $p = .045$). In contrast, no statistically significant correlations were found between verbal WMS and microstructure scores for either story generation or retelling (SG-MLU-w, SG-TNW, SG-NDW,

Table 3. Relationships between macrostructure and microstructure scores and WMS and RAN in the RLD group

Measure	Pearson	1	2	3	4	5	6	7	8	9	10	11	12	13
WMS (1)	*r*	1.000												
	p	-												
SR-MACRO (2)	*r*	.424*	1.000											
	p	.031	-											
SG-MACRO (3)	*r*	.396*	.636**	1.000										
	p	.045	< .001	-										
SG-MLU-W (4)	*r*	.137	.020	-.270	1.000									
	p	.503	.923	.182	-									
SG-MLU-M (5)	*r*	.115	.107	-.202	.845**	1.000								
	p	.578	.604	.323	< .001	-								
SG-TNW (6)	*r*	-.086	-.103	-.032	.265	.310	1.000							
	p	.677	.618	.875	.192	.124	-							
SG-NDW (7)	*r*	.191	.039	-.119	.529**	.626**	.511**	1.000						
	p	.350	.848	.564	.005	.001	.008	-						
SR-MLU-W (8)	*r*	.199	-.167	-.145	.226	.158	-.160	-.075	1.000					
	p	.329	.415	.481	.266	.440	.434	.715	-					
SR-MLU-M (9)	*r*	.241	-.115	-.061	.383	.400*	-.054	.159	.667**	1.000				
	p	.235	.575	.766	.053	.043	.794	.438	< .001	-				
SR-TNW (10)	*r*	-.088	-.067	.116	.223	.276	.891**	.535**	-.133	-.032	1.000			
	p	.670	.744	.572	.273	.173	< .001	.005	.519	.875	-			
SR-NDW (11)	*r*	-.009	.046	.161	.229	.281	.360	.634**	.026	-.02	.551**	1.000		
	p	.966	.823	.431	.262	.165	.071	.001	.898	.924	.004	-		
RAN object (12)	*r*	-.097	.303	.091	.044	.208	.027	-.121	-.047	-.203	.125	-.171	1.000	
	p	.638	.133	.658	.831	.309	.895	.556	.819	.320	.541	.404	-	
RAN colour (13)	*r*	.182	.283	.179	.077	.263	.133	-.044	-.094	.064	.179	-.211	.724**	1.000
	p	.373	.162	.381	.707	.194	.518	.830	.649	.756	.382	.300	< .001	-

WMS = Working memory scale; SR-Macro = Story retell macrostructure score; SR-MLU-w = Story retell mean length of utterance (in words); SR-MLU-m = Story retell mean length of utterance in morphemes; SR-TNW = Story retell total number of words; SR-NDW = Story retell number of different words; SG-Macro = Story Generation macrostructure score; SG-MLU-w = Story generation mean length of utterance (in words); SG-MLU-m = Story generation mean length of utterance in morphemes; SG-TNW = Story generation total number of words; SG-NDW = Story generation number of different words; RAN Objects = Rapid automatized naming–objects; RAN Colours = Rapid automatized naming–colours.
*$p < .05$, **$p < .01$.

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Table 4. Relationships between macrostructure and microstructure scores and WMS and RAN in the TD group

Measure	Pearson	1	2	3	4	5	6	7	8	9	10	11	12	13
WMS (1)	*r*	1.000												
	p	-												
SR-MACRO (2)	*r*	.535**	1.000											
	p	.005	-											
SG-MACRO (3)	*r*	.390*	.660**	1.000										
	p	.049	<.001	-										
SG-MLU-W (4)	*r*	.311	.512**	.539**	1.000									
	p	.122	.008	.005	-									
SG-MLU-M (5)	*r*	.377	.736**	.612**	.823**	1.000								
	p	.058	<.001	.001	<.001	-								
SG-TNW (6)	*r*	.453*	.618**	.660**	.254	.424*	1.000							
	p	.020	.001	<.001	.210	.031	-							
SG-NDW (7)	*r*	.420*	.306	.452*	.285	.371	.734**	1.000						
	p	.033	.129	.021	.159	.062	<.001	-						
SR-MLU-W (8)	*r*	.392*	.125	.332	.269	.316	.262	.279	1.000					
	p	.048	.542	.098	.184	.116	.196	.167	-					
SR-MLU-M (9)	*r*	.301	.270	.273	-.084	.122	.230	.178	.610**	1.000				
	p	.135	.182	.178	.684	.554	.258	.385	.001	-				
SR-TNW (10)	*r*	.573**	.431*	.440*	.430*	.440*	.617**	.566**	.256	.260	1.000			
	p	.002	.028	.024	.028	.024	.001	.003	.207	.200	-			
SR-NDW (11)	*r*	.401*	.321	.323	.355	.445*	.517**	.704**	.381	.291	.714**	1.000		
	p	.043	.110	.107	.075	.023	.007	<.001	.055	.150	<.001	-		
RAN object (12)	*r*	.418*	.436*	.367	-.325	-.366	.535**	.390*	-.113	-.095	-.290	-.179	1.000	
	p	.034	.026	.065	.105	.066	.005	.049	.583	.645	.151	.382	-	
RAN colour (13)	*r*	.380	.443*	.393*	-.317	-.380	.527**	.371	-.073	-.048	-.255	-.135	.990**	1.000
	p	.056	.023	.047	.114	.056	.006	.062	.721	.816	.210	.511	<.001	-

WMS = Working memory scale; SR-Macro = Story retell macrostructure score; SR-MLU-w = Story retell mean length of utterance (in words); SR-MLU-m = Story retell mean length of utterance in morphemes; SR-TNW = Story retell total number of words; SR-NDW = Story retell number of different words; SG-Macro = Story Generation macrostructure score; SG-MLU-w = Story generation mean length of utterance (in words); SG-MLU-m = Story generation mean length of utterance in morphemes; SG-TNW = Story generation total number of words; SG-NDW = Story generation number of different words; RAN Objects = Rapid automatized naming–objects; RAN Colours = Rapid automatized naming–colours.
*p<.05, **p<.01.

SR-MLU-m, SR-TNW, SR-NDW) (p>.05). Similarly, no significant relationships emerged between RAN subtests and either macrostructure or microstructure scores (p>.05). In summary, macrostructure scores were associated with verbal WMS in children with RLD, whereas neither microstructure scores nor RAN performance demonstrated significant associations with narrative measures.

As presented in Table 4, verbal WMS scores of children with TD showed a moderate positive correlation with SR-Macro (r=.535, p=.005) and a low positive correlation with SG-Macro (r=.390, p=.049). Verbal WMS scores were also moderately correlated with the microstructural measures SG-TNW (r=.453, p=.020) and SR-TNW (r=.573, p=.002), as well as low-to-moderate correlations with SG-NDW (r=.420, p=.033) and SR-NDW (r=.401, p=.043), and SR-MLU-w (r=.392, p=.048). Regarding rapid automatized naming, SR-Macro scores were positively correlated with RAN-Objects (r=.436, p=.026) and RAN-Colors (r=.443, p=.023). A low positive correlation was observed between SG-Macro and RAN-Colors (r=.393, p=.047). Furthermore, SG-TNW demonstrated moderate correlations with both RAN-Objects (r=.535, p=.005) and RAN-Colors (r=.527, p=.006).

DISCUSSION

The primary aim of this study was to compare the narrative skills of children with RLD and TD peers in the preschool period.

The second aim was to examine the relationship between verbal working memory, rapid naming, and narrative skills. According to the research results, children in the RLD group demonstrated lower levels of performance than their TD peers in both macrostructural and microstructural aspects of story retelling and story generation. The between-group differences were statistically significant for both story-retelling and story-generation tasks, and effect sizes were large for both the macrostructural and microstructural measures. We interpret these patterns with the following important qualification: because the RLD and TD groups also differed significantly in baseline TELD-3 scores, the present results should not be taken as evidence that the observed narrative differences are wholly independent of general language ability. Rather, the findings indicate that, within the context of an average-range language profile, children who exhibit the cognitive-processing risk pattern characteristic of RLD (i.e., reduced verbal working memory and slower rapid naming) also show measurable difficulties in producing coherent and lexically diverse narratives. This co-occurring profile is itself clinically meaningful, as it identifies a subgroup of children whose narrative skills may warrant additional preventive attention even though their general language abilities fall within the average range. Previous research indicates that studies examining the narrative skills of preschool children with RLD are limited (Fey et al., 2004; Heilmann et al., 2010). Most studies have been conducted with primary school children, and these studies consistently show that children with RLD exhibit weaker performance than their TD peers in both macrostructural and microstructural dimensions (Humphries et al., 2004; Ripich & Griffith, 1988; Seçkin-Yılmaz & Güler, 2019; Westerveld et al., 2008). Consistent with findings reported in previous studies, the present study found that children in the RLD group demonstrated significantly lower narrative skills than their TD peers with respect to macrostructural and microstructural features.

Discussion of Macro Structure Findings

The findings of the present study indicate that children with RLD experience significant difficulties with macrostructural features, including constructing the plot, expressing characters' internal reactions, and conveying story elements coherently. However, it was also determined that children in the TD group struggled to initiate the story, mention character names, express characters' mental and emotional states, and conclude the story. Nevertheless, these difficulties appeared to be more pronounced in children in the RLD group compared to their peers in the TD group. Children in the RLD group used pronouns (such as this, that, it) more frequently than character names and allocated less space to cognitive (such as knows, thinks, decides) and emotional (afraid, angry, sad, etc.) states. This pattern may reflect word retrieval difficulties, which may be associated with limitations in verbal working memory, as children with reduced working memory capacity may experience difficulty maintaining and retrieving lexical items during narrative production (Francis & Thomas, 2015; Rao et al., 2024). At the same time, this pattern may also be influenced by the pro-drop nature of Turkish, where subjects are often omitted and reference tracking relies heavily on contextual and discourse cues. This may further increase the difficulty of maintaining clear referential cohesion in children with RLD.

Children in the RLD group also showed substantial limitations in story completion, paid less attention to key narrative elements such as the initiating event, character goals, and obstacles, and produced shorter and less elaborated narratives. Overall, they exhibited weaker performance in organizing and conveying coherent narratives. These findings may also be interpreted in relation to the structural properties of Turkish. Given that Turkish allows for pro-drop and flexible word order, maintaining referential clarity and explicitly organizing narrative elements (e.g., character roles and causal links) may place additional demands on children's discourse-level processing. In this context, children with RLD may experience greater difficulty in constructing coherent macrostructural representations of narratives.

Research conducted with primary school-aged children with RLD indicates similar difficulties in language development and cognitive processes. Indeed, the results of the correlation analysis examining the relationship between the macrostructure scores for retelling and story generation and the scores for verbal working memory and rapid naming support this interpretation. The analysis found a positive relationship between the verbal working memory of children in the RLD group and their scores on the SR-Macro and SG-Macro. A similar relationship was observed between

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verbal working memory and SR-Macro and SG-Macro scores in the TD group. These findings are consistent with results from previous studies involving primary school children (Kida et al., 2015; Veraksa et al., 2020) suggesting that narrative performance at the macrostructural level is closely related to verbal working memory in both groups.

Discussion of Microstructure Findings

When evaluated in terms of microstructure, children in the TD group demonstrated significantly higher performance than those in the RLD group. They produced longer and more complex sentences and used a greater number and variety of words. In contrast, children in the RLD group used a more limited and less varied set of words than those in the TD group. In this context, the variety of words used by children provides important clues about their language development.

The total number of words in stories is an important indicator of children's linguistic productivity. Measures of story productivity can effectively distinguish between children with language disorders and TD children. Indeed, it has been noted that the stories of children with language disorders are generally shorter, contain fewer complex sentences, and cover fewer content ideas (Auza et al., 2018; Ketelaars et al., 2016). The findings of this study also show that children in the TD group produced longer, more complex stories with greater lexical diversity during story retelling and story generation than their peers in the RLD group. This suggests that the TD group has more advanced language skills than the RLD group and uses microstructural components more effectively in story narration. These differences may be particularly meaningful in Turkish, a morphologically rich language in which meaning is conveyed through complex inflectional structures. Producing linguistically dense and morphologically accurate utterances may place additional demands on children's linguistic processing, thereby exacerbating microstructural difficulties in children with RLD. Furthermore, another important finding of the present study is that children in the RLD group obtained significantly lower scores than their TD peers on mean length of utterance measures (in both words and morphemes) in the story retelling and story generation tasks, reflecting weaker language skills.

The results obtained in the present study reveal that the relationship between verbal working memory and the microstructural components of narrative skills differs across groups. No significant relationship was found between the micro-structure scores obtained from the story retelling and story generation tasks and verbal working memory and rapid naming skills in children in the RLD group. This result suggests that the fundamental factor limiting the narrative performance of the RLD group may not be fully explained solely by cognitive capacity. Rather, these children may struggle to effectively deploy their cognitive resources during language production or may experience more fundamental difficulties in accessing and using linguistic knowledge. In contrast, positive associations were observed between verbal working memory and productive microstructural indicators, such as lexical variety and total word count, in TD children. These findings reveal that verbal working memory is an important cognitive resource that supports linguistic richness and fluency during narrative production. Indeed, Alloway et al. (2009) state that high verbal working memory capacity enables children to process more linguistic units simultaneously and to use these units more flexibly in narrative processing. Accordingly, TD children with strong verbal working memory can effectively use a more varied and comprehensive vocabulary during the story generation process.

On the other hand, apart from a weak association between verbal working memory and utterance length in the story-retelling task in the TD group ($r = .392$, $p = .048$), the present study found no significant relationships between children's verbal working memory and the more structurally constrained microstructural indicators, namely mean length of utterance in words and in morphemes. This finding suggests that these linguistic features may be grounded in established linguistic knowledge rather than cognitive capacity. The literature suggests that morpheme usage and other grammatical components are relatively automatic linguistic skills stored in long-term memory (Archibald & Gathercole, 2007; Montgomery et al., 2010). Therefore, it is expected that structured language features are less affected by individual differences in verbal working memory. However, in Turkish, where morphological encoding carries substantial grammatical and semantic information, even these seemingly stable linguistic features may interact with processing limitations, particularly in children with RLD.

The low verbal working memory performance of children in the RLD group is considered a primary source of difficulties in linguistic and cognitive processes (Marton & Schwartz, 2003; Riccio et al., 2007). Working memory plays a critical role in temporarily holding and processing information and is particularly important in tasks requiring complex language skills (Kida et al., 2015; Veraksa et al., 2020). In this context, children with weak verbal working memory are expected to struggle with complex linguistic tasks such as reading and story generation. Consistent with this view, findings indicate that children in the RLD group with low working memory performance exhibit weaker micro-level performance (mean sentence length, lexical diversity, syntactic complexity) in their narrative skills (Justice et al., 2006).

Consequently, the difficulties experienced by children with RLD in language, memory, and narrative skills are associated with cognitive abilities such as verbal working memory and rapid naming. In line with findings in the literature, macro- and microstructural narrative deficits in children with RLD are closely linked to limitations in memory and language skills. Therefore, it is critically important to provide preventive support for children at risk in the preschool period through early assessment and interventions in these areas (Açıkgöz & Özmen, 2024).

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the sample was limited to preschool-aged children within a specific age range, which may restrict the generalizability of the results to other age groups or developmental stages. Second, the study employed a cross-sectional design, and data were collected at a single time point; therefore, developmental changes and causal relationships between cognitive variables and narrative skills cannot be inferred. Third, narrative skills were assessed using specific narrative tasks, namely story retelling and story generation, which may not fully capture children's narrative abilities across different contexts. Additionally, the microstructural analysis was restricted to selected linguistic indicators, and other aspects of narrative complexity were not examined. Finally, only verbal working memory and rapid naming were included as cognitive correlates, while other cognitive processes that may influence narrative performance were not assessed. A further important limitation concerns baseline group differences in general language ability. Although all children in the RLD group performed within or above the average range on the TELD-3 (standard score ≥ 85), the RLD group's mean TELD-3 scores were significantly lower than those of the TD group (Table 1). The observed narrative performance differences between the two groups may therefore partially reflect differences in general language ability rather than differences in narrative-specific skills alone. The present study's relatively modest sample size (n = 26 per group) and the inherent confounding of group status with language ability (i.e., the RLD profile, by definition, encompasses children with comparatively lower though still average-range, language skills) limited our ability to statistically disentangle these contributions using approaches such as analysis of covariance (ANCOVA).

Implications for Practice and Recommendations for Future Research

The research findings indicate that narrative skills, as assessed through tasks such as story retelling and story generation, play an important role in the assessment and intervention processes for children with LD or on the RLD spectrum. In particular, evaluating both macrostructural (e.g., plot construction, character goals, internal states) and microstructural components (e.g., lexical diversity, sentence complexity) can provide a more comprehensive picture of children's narrative abilities. Story generation should be systematically incorporated into early screening and assessment procedures in preschool settings.

In this regard, children's cognitive skills, such as language and verbal working memory, require support through early intervention programmes. Intervention programmes should include structured and scaffolded activities that target story organisation, character development, and the use of internal state language, while also fostering lexical diversity and syntactic complexity. In Turkish, particular emphasis should be placed on supporting children's use of morphologically complex structures and explicit reference marking, as well as strengthening their ability to maintain coherence in narratives despite flexible word order and subject omission patterns. In addition, memory-supportive strategies such as visual story maps, repeated exposure to narrative struc-

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tures, guided retelling, and supported story generation tasks may help children with RLD more effectively organise and express their narratives.

Increasing teachers' and parents' knowledge and skills regarding the specific needs of children with RLD is critical in creating a learning environment that supports children's academic and socio-emotional development. Preschool teachers can model rich narrative language during shared book reading and classroom narrative activities, explicitly highlighting story structure and encouraging children to verbalise characters' thoughts and emotions. Furthermore, preschool teachers and families should use narrative techniques and strategies effectively to strengthen children's language development, emotional expression, and social skills. Families can also be guided to engage children in daily narrative practices, such as recounting daily events or creating stories together using visual materials.

For further research, it is recommended that narrative skills be examined across a wider range of age groups and with larger sample sizes. To better understand the developmental trajectories of narrative skills in children diagnosed with LD, further research should be conducted with older age groups and participants from diverse socioeconomic backgrounds. In addition, future studies may employ a wider range of contexts and methods (e.g., photo recall and prosodic analysis) to assess children's language and narrative skills, while also including different special-needs groups. Data obtained from such studies may contribute to the development of intervention programmes that are more precisely tailored to children's individual needs.

Overall, the present findings underscore the necessity of comprehensive assessments and early intervention programmes for the language development of children with RLD. As recommended by the American Speech-Language-Hearing Association (ASHA, 2023), narrative skills should be incorporated into language and cognitive assessments, and early language support during the preschool period is important for making intervention programmes more effective. Strengthening narrative skills during the preschool years may also play a preventive role by reducing the risk of later academic and language difficulties. Future research will further deepen our understanding of the early identification and intervention processes related to RLD.

Conclusion

This study demonstrates the necessity of comprehensive assessments and early intervention programmes for the language development of children with RLD. In line with the American Speech-Language-Hearing Association (ASHA, 2023), incorporating narrative skills into language and cognitive assessments, as well as providing early language support during the preschool period, is essential for enhancing the effectiveness of early intervention programmes. Future research will further deepen our understanding of the early identification and intervention processes related to RLD.

REFERENCES

Acarlar, F., & Johnston, J. R. (2011). Acquisition of Turkish grammatical morphology by children with developmental disorders. *International Journal of Language & Communication Disorders, 46*(6), 728-738.

Açıkgöz, G., & Özmen, E. R. (2024). Öğrenme güçlüğü risk grubunda olan ana sınıfı çocuklarının özelliklerinin aile ve öğretmen görüşlerine göre belirlenmesi. *International Journal of Education Technology & Scientific Researches, 9*(28), 575-593.

Aksu-Koç, A. (1988). *The acquisition of aspect and modality: the case of past reference in Turkish*. Cambridge University Press.

Aksu-Koç, A. (1994). Development of linguistic forms: Turkish. In R. Berman & D. I. Slobin (Eds.), *Relating events in narrative: a crosslinguistic developmental study* (pp. 217-255). Erlbaum.

Alloway, T. P., Gathercole, S. E., Kirkwood, H., & Elliott, J. (2009). The cognitive and behavioral characteristics of children with low working memory. *Child Development, 80*(2), 606-621.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.

American Speech-Language-Hearing Association. (2023). Language. Retrieved from https://www.asha.org/policy/.

Archibald, L. M., & Gathercole, S. E. (2007). Nonword repetition in specific language impairment: more than a phonological short-term memory deficit. *Psychonomic Bulletin & Review, 14*(5), 919-924.

Auza, A., Harmon, M. T., & Murata, C. (2018). Retelling stories: grammatical and lexical measures for identifying monolingual Spanish speaking children with specific language impairment (SLI). *Journal of Communication Disorders, 71*, 52-60.

Bartl-Pokorny, K. D., Marschik, P. B., Sachse, S., Green, V. A., Kaufmann, W. E., Sigafoos, J., ..., & Einspieler, C. (2013). Socio-communicative forms and functions in individuals with Rett syndrome. *Journal of Developmental & Physical Disabilities, 25*, 105-118.

Berman, R. A., & Slobin, D. I. (1994). *Relating events in narrative: a crosslinguistic developmental study*. Lawrence Erlbaum.

Bildiren, A., Kargın, T., & Korkmaz, M. (2017). Renkli progresif matrisleri testinin 4–6 yaş aralığında güvenirlik ve geçerlik çalışması. *Turkish Journal of Giftedness & Education, 7*(1), 19-38.

Bishop, D. V., & Edmundson, A. (1987). Language-impaired 4-year-olds: distinguishing transient from persistent impairment. *Journal of Speech & Hearing Disorders, 52*(2), 156-173.

Bishop, D. V., & Snowling, M. J. (2004). Developmental dyslexia and specific language impairment: same or different? *Psychological Bulletin, 130*(6), 858-886.

Bleses, D., Makransky, G., Dale, P. S., Højen, A., & Ari, B. A. (2016). Early productive vocabulary predicts academic achievement 10 years later. *Applied Psycholinguistics, 37*(6), 1461-1476.

Diehm, E. A., Wood, C., DeBuse, C., & Richels, C. (2020). The impact of story stimuli on narrative retells by children with language disorders. *Language, Speech, & Hearing Services in Schools, 51*(2), 472-490.

Ergül, C., & Demir, E. (2018). *Hızlı isimlendirme testi uygulayıcı kılavuzu*. Ankara Üniversitesi.

Ergül, C., Özgür Yılmaz, Ç., & Demir, E. (2018). 5-10 yaş grubu çocuklara yönelik geliştirilmiş çalışma belleği ölçeğinin geçerlik ve güvenirliği. *Eğitimde Kuram ve Uygulama, 14*(2), 187-214.

Fey, M. E., Catts, H. W., Proctor-Williams, K., Tomblin, J. B., & Zhang, X. (2004). Oral and written story composition skills of children with language impairment. *Journal of Speech, Language, & Hearing Research, 47*(6), 1301-1318.

Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage.

Francis, N. M., & Thomas, I. (2015). Memory impairments in children with specific learning disabilities. *Journal of the Indian Academy of Applied Psychology, 41*(1), 46-53.

Gilkerson, J., Richards, J. A., Warren, S. F., Oller, D. K., Russo, R., & Vohr, B. (2018). Language experience in the second year of life and language outcomes in late childhood. *Pediatrics, 142*(4), e20174276.

Griffin, T. M., Hemphill, L., Camp, L., & Wolf, D. P. (2004). Oral discourse in the preschool years and later literacy skills. *First Language, 24*(1), 123-147.

Güven, S., & Leonard, L. B. (2023). Verb morphology in Turkish-speaking children with and without DLD: the role of morphophonology. *Clinical Linguistics & Phonetics, 37*(1), 99-123.

Güven, S., & Topbaş, S. (2014). Adaptation of the Test of Early Language Development-(TELD-3) into Turkish: reliability and validity study. *International Journal of Early Childhood Special Education, 6*(2), 151-176.

Heilmann, J., Miller, J. F., & Nockerts, A. (2010). Sensitivity of narrative organization measures using narrative retells produced by young school-age children. *Language Testing, 27*(4), 603-626.

Heilmann, J., Miller, J. F., Nockerts, A., & Dunaway, C. (2010). Properties of the narrative scoring scheme using narrative retells in young school-age children. American Journal of Speech-Language Pathology, 19(2), 154-166.

Humphries, T., Cardy, J. O., Worling, D. E., & Peets, K. (2004). Narrative comprehension and retelling abilities of children with language learning disabilities. *Journal of Learning Disabilities, 37*(5), 418-428.

İnce, M. (2025). Okul öncesi dönem öğrenme güçlüğü risk grubu olan ve tipik gelişim gösteren çocukların öyküleme becerilerinin karşılaştırılması (Doctoral dissertation). Gazi University.

Justice, L. M., Bowles, R. P., Kaderavek, J. N., Ukrainetz, T. A., Eisenberg, S. L., & Gillam, R. B. (2006). The index of narrative microstructure: a clinical tool for analyzing school-age children's narrative performances. *American Journal of Speech-Language Pathology, 15*(2), 177-191.

Ketelaars, M. P., Jansonius, K., Cuperus, J., & Verhoeven, L. (2016). Narrative competence in children with pragmatic language impairment: a longitudinal study. *International Journal of Language & Communication Disorders, 51*(2), 162-173.

Kida, A. S., De Ávila, C. R. B., & Capellini, S. A. (2015). Syntactic markers in the oral retelling of dyslexic students. *CoDAS, 27*(6), 557-564.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*(4), 563-575.

Lindgren, S. (2023). Developmental trajectories of narrative skills in early childhood. *Early Childhood Research Quarterly, 65*, 233-243.

Marton, K., & Schwartz, R. G. (2003). Working memory capacity and language processes in children with specific language impairment. *Journal of Speech, Language, & Hearing Research, 46*(5), 1138-1153.

Mayer, M. (1969). *Frog, where are you?* Dial.

Ministry of National Education. (2014). *Millî Eğitim Bakanlığı okul öncesi eğitim ve ilköğretim kurumları yönetmeliği* [Regulation on preschool education and primary education institutions of the Ministry of National Education]. Resmî Gazete, 29072.

Montgomery, J. W., Magimairaj, B. M., & Finney, M. C. (2010). Working

 https://doi.org/10.12963/csd.260231

memory and specific language impairment: an update on the relation and perspectives on assessment and treatment. *American Journal of Speech-Language Pathology, 19*(1), 78-94.

Ögel-Balaban, H., & Hohenberger, A. (2020). The development of narrative skills in Turkish-speaking children: a complexity approach. *PLoS ONE, 15*(5), e0232579.

Pennington, B. F., & Bishop, D. V. M. (2009). Relations among speech, language, and reading disorders. *Annual Review of Psychology, 60*(1), 283-306.

Petersen, D. B., & Spencer, T. D. (2012). The narrative language measures: tools for language screening, progress monitoring, and intervention planning. *Perspectives on Language Learning and Education, 19*(4), 119-129.

Pinto, G., Tarchi, C., & Bigozzi, L. (2018). Is two better than one? Comparing children's narrative competence in an individual versus joint storytelling task. *Social Psychology of Education, 21*(1), 91-109.

Piştav-Akmeşe, P. (2015). Çocuklarda öykülemenin gelişimi ve dilin değerlendirilmesinde kullanımı. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Özel Eğitim Dergisi, 16*(3), 293-305.

Rao, P. S., Pandey, M. K., Mishra, P., Deshmukh, S., Jahan, M., & Manohar, J. S. (2024). Is there a language-based difference in narrative retelling ability among typically developing children? *Child Language Teaching and Therapy*. Advance online publication. https://doi.org/10.1177/0265659024129 2230.

Rathmann, P. (1994). *Good night, gorilla*. G.P. Putnam's Sons.

Riccio, C. A., Cash, D. L., & Cohen, M. J. (2007). Learning and memory performance of children with specific language impairment (SLI). *Applied Neuropsychology, 14*(4), 255-261.

Ripich, D. N., & Griffith, P. L. (1988). Narrative abilities of children with learning disabilities and nondisabled children: story structure, cohesion, and propositions. *Journal of Learning Disabilities, 21*(3), 165-173.

Rungrojsuwan, S. (2024). Narrative skills in children with intellectual disabilities: a longitudinal analysis. *Journal of Special Education, 58*(2), 112-123.

Seçkin-Yılmaz, Ş., & Güler, S. (2019). *Öğrenme güçlüğü olan ve olmayan öğrencilerin öyküleme ve zihin kuramı performanslarının incelenmesi.* Proceedings of the Uluslararası Katılımlı Özgül Öğrenme Güçlüğü Kongresi, İstanbul Ticaret Üniversitesi, İstanbul, Türkiye.

Suggate, S., Schaughency, E., McAnally, H., & Reese, E. (2018). From infancy to adolescence: the longitudinal links between vocabulary, early literacy skills, oral narrative, and reading comprehension. *Cognitive Development, 47*, 82-95.

Veneziano, L., & Hooper, J. (1997). A method for quantifying content validity of health-related questionnaires. *American Journal of Health Behavior, 21*(1), 67-70.

Veraksa, A., Bukhalenkova, D., Kartushina, N., & Oshchepkova, E. (2020). The relationship between executive functions and language production in 5-6-year-old children: insights from working memory and storytelling. *Behavioral Sciences, 10*(2), 52.

Westby, C. E. (2012). Assessing and remediating text comprehension problems. In A. G. Kamhi & H. W. Catts (Eds.), *Language and reading disabilities* (3rd ed., pp. 163-225). Pearson.

Westerveld, M. F., Gillon, G. T., & Moran, C. (2008). A longitudinal investigation of oral narrative skills in children with mixed reading disability. *International Journal of Speech-Language Pathology, 10*(3), 132-144.

Wood, C., Wofford, M. C., & Schatschneider, C. (2018). Relationship between performance on oral narrative retells and vocabulary assessments for Spanish-English speaking children. *Communication Disorders Quarterly, 39*(3), 402-414.

Yurdugül, H. (2005). *Using content validity indices for content validity in scale development studies*. Proceedings of the XIV. National Educational Sciences Congress, Pamukkale University, Denizli, Türkiye.

Zauche, L. H., Thul, T. A., Mahoney, A. E. D., & Stapel-Wax, J. L. (2016). Influence of language nutrition on children's language and cognitive development: an integrated review. *Early Childhood Research Quarterly, 36*, 318-333.

Appendix 1. Macro-structure scoring rubric for the story generation task (Good Night, Gorilla)

Feature	Proficient (3)	Emerging (2)	Minimal/Immature (1)
Introduction Scored on the presence, absence, and qualitative description of character and setting components.	1) Setting: Describes the general setting with at least three details. The general setting description includes: - Zoo - Night time - Lantern - Banana - Balloon - Keychain - Mention of cages. 2) Characters: - Gorilla/Monkey - Zookeeper/Caretaker - Mouse (These characters are introduced with descriptions.) Example: The zookeeper locked all the cages. He set off for home. While leaving after locking the gorilla's/monkey's cage, the gorilla/monkey secretly took the cage keys from the zookeeper's belt. He opened the cage and followed the zookeeper. The gorilla/monkey opened all the cages. He let the animals out of their cages. All the animals followed the zookeeper. Note: Mentions all three characters. Mentions at least three items related to the setting (zoo, cage, house, bedroom, etc.). Orders the events correctly.	1) Setting: Mentions one or two parts of the general setting without sufficient detail. The general setting description includes: - Zoo - Lantern - Keychain - Mention of cages. 2) Characters: - Gorilla/Monkey - Zookeeper/Caretaker - Mouse Mentions two of the three characters or mentions the characters without sufficient detail. Example: The gorilla/monkey took the keys. He opened his cage. He escaped from the cage. He started to follow the zookeeper. Note: Provides detail about at least one character. Labels the other characters. Does not mention the zookeeper or the other animals. Includes two or fewer setting elements.	1) Setting: Begins the story without attempting to introduce the setting or characters, or only labels what is seen in the pictures. Example: Gorilla/monkey took the keys. They got out of the cage. /Gorilla/monkey, zookeeper/ caretaker, mouse are there. Note: Lacks setting and character descriptions, and produces a generally weak introduction.
Character Development Scored on character recognition and the importance of characters in the story. Incorrect use of character names is not penalized.	Main characters: - Gorilla/Monkey - Zookeeper/Caretaker (Uses these characters throughout the story.) All supporting characters: - Zookeeper's wife - Elephant - Lion - Giraffe - Mouse (Mentions these characters. Uses at least three first-person utterances in the characters' voices.) Example: After the zookeeper said "Good night" to all the animals and returned home, the mouse, gorilla, elephant, lion, and giraffe followed him. All the animals entered the zookeeper's house. The gorilla/monkey followed the zookeeper's wife. Note: Mentions two main characters throughout the story. Consistently refers to all characters. Uses dialogue.	Main characters: - Gorilla/Monkey - Zookeeper/Caretaker (Uses these characters throughout the story.) All supporting characters: - Zookeeper's wife - Elephant - Lion - Giraffe - Mouse (Mentions these characters.) Describes two of the main characters and at least three of the supporting characters. Uses first-person utterance once or twice. Example: The gorilla and the other animals followed the zookeeper. Then they slept. The wife saw the animals sleeping. Note: Mentions two main characters throughout the story.	Main characters: - Gorilla/Monkey - Zookeeper/Caretaker (Uses these characters throughout the story.) All supporting characters: - Zookeeper's wife - Elephant - Lion - Giraffe - Mouse Does not use first-person utterance. Example: The zookeeper went home. He slept. Then the lights went off. Note: Mentions only one of the two main characters (the gorilla and the zookeeper). Does not mention that the cages were opened or that the zookeeper's wife returned them to the cages.

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Appendix 1. Continued

Feature	Proficient (3)	Emerging (2)	Minimal/Immature (1)
Mental and Emotional States Scored on the vocabulary used to convey characters' feelings and on the appropriate use of these words within the story's flow.	Uses four or more mental and emotional state words when needed to advance the plot for main and supporting characters. Emotional state examples: - Afraid - Surprised - Angry - Happy - Bad - Sad - Worried Mental state examples: - Knows - Thinks - Decides - Likes - Recognizes - Quiet (Uses a variety of mental and emotional state words.) Example: The gorilla quietly took the keys. All the animals were happy because they were out of their cages. The gorilla slept quietly. The zookeeper's wife was surprised when she saw the animals. The wife became angry/worried/scared when she saw the animals sleeping in the bedroom. Note: Uses a variety of mental/emotional state words.	Uses two or three emotional and mental state words from those used in some stories. Uses mental and emotional state words only for main characters. Uses at least two mental state and at least two emotional state words. Uses some prominent mental/emotional state words to develop the character(s). Example: The woman was scared. The gorilla was happy.	Uses mental and emotional state words once or not at all. Example: The gorilla followed the zookeeper. He opened the cage.
Referencing/Audience Awareness Scored on the consistent and accurate use of antecedents and clarifiers throughout the story. The use of correct pronouns and proper nouns is considered when scoring.	- Uses character names correctly. (Gorilla/monkey, zookeeper/caretaker, zookeeper's wife, elephant, lion, giraffe, and mouse.) - Uses pronouns correctly throughout the narrative. - Listeners easily understand whom the speaker is talking about in the story. - Uses the necessary antecedents for pronouns. - References are clear throughout the story. Example: The gorilla was following the zookeeper. He was going to his house. The gorilla took them out of the cage. Then he brought them to the house of the zookeeper and his wife. They slept in their bedroom.	- Character names contain few errors. (For example, calling the lion a dog/tiger; calling the giraffe a rhinoceros.) - Uses most pronouns correctly throughout the narrative. - Listeners can infer whom the speaker is talking about in the story. - Uses references inconsistently. Example: The gorilla took the dog out of the cage. The mole was also in the cage. Then they came out. His wife said, "Sleep in your own home."	- Uses character names incorrectly throughout the story. - Overuses pronouns. Does not provide character names. - Listeners may not distinguish whom the speaker is talking about throughout the story. - Does not use verbal clarifiers. - The speaker is unaware that the listener is confused. Example: They got out of the cage. Then they went to his house. Then they took them home. Note: The referents of the pronouns are unclear.

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Appendix 1. Continued

Feature	Proficient (3)	Emerging (2)	Minimal/Immature (1)
Conflict/Resolution or Event/ Reaction Scored on the presence/absence of conflicts or events and the resolutions/character reactions needed to express the story, including how comprehensively each is described.	Clearly expresses the conflicts in the story with details. 1. The gorilla/monkey quietly takes the key from the zookeeper's/caretaker's pocket and lets the animals out of their cages at the zoo. All the animals follow the zookeeper/caretaker home. 2. All the animals try to sleep in the zookeeper's/caretaker's bedroom. The zookeeper's wife realizes that the animals are in their bedroom. 3. The zookeeper's/caretaker's wife takes all the animals back to their cages. 4. The gorilla/monkey and the mouse escape from the cage again and follow the zookeeper's wife. 5. The gorilla/monkey and the mouse sleep between the zookeeper and his wife. Addresses all supporting story elements needed to advance the plot, with appropriate detail: 1. The zookeeper/caretaker checks the zoo animals 2. The gorilla/monkey takes the keys from the zookeeper's pocket 3. The elephant, lion, and giraffe that the gorilla/monkey let out of the cage 4. All the animals following the zookeeper/ caretaker 5. The zookeeper's wife sleeping in the bedroom 6. The mouse saying "Good night, gorilla."	Mentions 2-3 of the conflicts in the story but does not provide sufficient detail. 1. The gorilla quietly takes the key from the zookeeper's pocket and lets the animals out of their cages at the zoo. All the animals follow the zookeeper home. 2. All the animals try to sleep in the zookeeper's bedroom. The zookeeper's wife realizes that the animals are in their own bedrooms. 3. The zookeeper's wife takes all the animals back to their cages. 4. The gorilla and the mouse escape from the cage again and follow the zookeeper's wife. 5. The gorilla and the mouse sleep between the zookeeper and his wife. Addresses only 2-3 supporting story elements needed to advance the plot. Provides few or no details: 1. The zookeeper/caretaker checks the zoo animals 2. The gorilla/monkey takes the keys from the zookeeper's pocket 3. The elephant, lion, and giraffe that the gorilla let out of the cage 4. All the animals following the zookeeper/caretaker 5. The zookeeper's/caretaker's wife sleeping in the bedroom 6. The mouse saying "Good night, gorilla."	Does not mention the main conflicts of the story or mentions one of them without sufficient detail. 1. The gorilla quietly takes the key from the zookeeper's pocket and lets the animals out of their cages at the zoo. All the animals follow the zookeeper home. 2. All the animals try to sleep in the zookeeper's bedroom. The zookeeper's wife realizes that the animals are in their own bedrooms. 3. The zookeeper's wife takes all the animals back to their cages. 4. The gorilla and the mouse escape from the cage again and follow the zookeeper's wife. 5. The gorilla and the mouse sleep between the zookeeper and his wife. Addresses only 1-2 supporting story elements needed to advance the plot. Provides excessive detail or no detail at all: 1. The zookeeper/caretaker checks the zoo animals 2. The gorilla/monkey takes the keys from the zookeeper's pocket 3. The elephant, lion, and giraffe that the gorilla let out of the cage 4. All the animals following the zookeeper/caretaker 5. The zookeeper's/caretaker's wife sleeping in the bedroom 6. The mouse saying "Good night, gorilla."
Flow and Coherence/Cohesion Scored on the sequence of each event, the details provided, and the transitions between each event.	Events follow the order in the story. Understands that the story has a beginning, middle, and end. There is little or no need for rephrasing of expressions. Uses various transition words and expressions (then, next, finally) to make smooth transitions between events. Example: The gorilla took the keys from the zookeeper's pocket. Then he let the animals out of their cages. The gorilla and the other animals/elephant, lion, giraffe, mouse followed the zookeeper home. They all tried to sleep in the zookeeper's bedroom. Then the zookeeper's wife noticed the animals. She took all the animals back to their cages at the zoo. But the gorilla did not go back into the cage. The gorilla and the mouse followed the zookeeper's wife back into their bedroom. In the end, the gorilla and the mouse slept between the zookeeper and his wife.	Events follow the order in the story. Provides too much detail about supporting events or lacks detail about the main events of the story. Makes some corrections and rephrasings in the expressions throughout the story. There are no smooth transitions between events and there is little variety in transition words. Example: The gorilla took the keys from the zookeeper's pocket. Then, he let the animals out of their cages. The gorilla and the other animals/ elephant, lion, giraffe, mouse followed the zookeeper. They all tried to sleep in the zookeeper's bedroom. The gorilla returned to their bedroom. The gorilla and the mouse slept in the zookeeper's bed.	Events do not follow the order in the story. Corrections and rephrasing are common throughout the story. Transition expressions are not used between events in the story. Example: He noticed something. They slept in their bed. He took them back to the cage. He came again, slept in his bed.

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Appendix 1. Continued

Feature	Proficient (3)	Emerging (2)	Minimal/Immature (1)
Conclusion Scored on the outcome of the final event and the completion of the entire story.	The story is clearly completed with at least three of the six components: 1. The zookeeper's/caretaker's wife puts/ takes all the animals back into their cages/ to the zoo. 2. The zookeeper's wife goes to her own house and goes to bed. 3. The gorilla follows the zookeeper's wife and goes back to the zookeeper's house. He sleeps in the zookeeper and his wife's bed. 4. The mouse/gorilla eats the banana. 5. The mouse says "Good night, gorilla." 6. The gorilla/monkey is happy because he is sleeping in the zookeeper/caretaker and his wife's bed. Example: Then the gorilla followed the zookeeper's wife. He slept in their bed. The mouse said "Good night, gorilla." The gorilla was happy because he was sleeping between the zookeeper and his wife.	Completes the story with two of the four final components: 1. The zookeeper's/caretaker's wife puts all the animals back into their cages. 2. The gorilla/monkey sleeps in the bed of the zookeeper/caretaker and his wife. 3. The mouse says "Good night, gorilla." 4. The gorilla/monkey is happy because he is sleeping in the bed of the zookeeper/caretaker and his wife. Example: Then the gorilla fell asleep. The mouse also said, "Good night, gorilla." The zookeeper and his wife also fell asleep.	The listener may not understand that the story has ended. The story ends abruptly with one of the conclusion elements: 1. The mouse says "Good night, gorilla." 2. The zookeeper/caretaker and his wife sleep. 3. The gorilla/monkey sleeps in the bed. 4. They all sleep. Example: Then they all slept.

This rubric was developed by the authors based on Heilmann et al.'s (2010) Narrative Scoring Scheme (NSS), originally designed for Frog, Where Are You?, and adapted to evaluate macro-structural performance in the story-generation task using Good Night, Gorilla (Rathmann, 1994). Each of the seven features is independently scored on a 3-point scale: 3 = Proficient, 2 = Emerging, 1 = Minimal/Immature. A composite score is calculated by summing the seven feature scores (range 0-21).
Scoring. Each feature is scored from 0 to 3. Proficient = 3, Emerging = 2, Minimal/Immature = 1. A composite score is obtained by summing the feature scores. The maximum possible score is 21.
*A score of 0 is given for participant errors (e.g., narrating the wrong story, talking to the examiner, not completing the story, refusing to narrate, incomplete utterances, unintelligible utterances).
*A score of "not applicable" is given for technical/examiner/observer/physical-environment errors (e.g., unintelligibility due to background noise, recording-related problems, the observer ending the session before the participant, the observer not following the protocol, the observer asking overly specific or leading questions rather than using open-ended prompts).
Source. Adapted from the macro-structure scoring rubric developed in the first author's doctoral dissertation (İnce, 2025). Reference: Heilmann, J., Miller, J. F., Nockerts, A., & Dunaway, C. (2010). Properties of the Narrative Scoring Scheme using narrative retells in young school-age children. *American Journal of Speech-Language Pathology, 19*(2), 154-166.

CSD COMMUNICATION SCIENCES & DISORDERS

국문초록

학습장애 위험군 아동과 일반 아동의 이야기 산출 능력 비교

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배경 및 목적: 본 연구는 학습장애 위험군 아동과 일반 아동의 이야기 다시 말하기 및 이야기 생성하기 능력을 거시구조 및 미시구조적 내러티브 특성 측면에서 비교하는 것을 목적으로 하였다. 또한 아동의 내러티브 수행력과 언어적 작업기억 및 빠른 자동 이름대기 능력 간의 관계를 살펴보았다. 방법: 연구 대상은 생활연령 60–72개월의 아동 52명으로, 학습장애 위험군 아동 26명과 일반 아동 26명으로 구성되었다. 집단 간 내러티브 수행력 차이를 검토하기 위해 비교 및 상관 연구 설계를 적용하였다. 이야기 다시 말하기 자료는 그림 없는 그림책 『개구리야, 어디 있니? (Frog, Where Are You?)』를 사용하여 수집하였으며, 이야기 생성하기 자료는 『잘 자, 고릴라(Good Night, Gorilla)』를 사용하여 수집하였다. 거시구조 특성은 내러티브 채점 체계(Narrative Scoring Scheme)를 활용하여 평가하였고, 미시구조 특성은 SALT (Systematic Analysis of Language Transcripts) 소프트웨어를 사용하여 분석하였다. 결과: 학습장애 위험군 집단 아동은 이야기 다시 말하기와 이야기 생성하기 모두에서 일반 아동에 비해 거시구조 및 미시구조 수행력이 유의하게 낮은 것으로 나타났다. 두 집단 모두에서 아동의 언어적 작업기억과 거시구조적 내러티브 점수 간에 중간 수준의 정적 상관이 관찰되었다. 일반 아동 집단에서는 언어적 작업기억이 어휘 다양도 및 총 낱말 수와 같은 미시구조 지표와도 유의한 상관을 보였다. 논의 및 결론: 이러한 결과는 내러티브 능력이 학습장애 위험을 조기에 탐지할 수 있는 잠재적 지표임을 강조하며, 조기 선별 절차에 내러티브 기반 평가를 포함할 필요성을 지지한다.

핵심어: 내러티브, 이야기 산출, 이야기 생성하기, 이야기 다시 말하기, 학습장애 위험군, 일반 아동

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