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ABSTRACT

This study explored the development of oral narrative retell proficiency among Mandarin Chinese-English dual language immersion (DLI) learners in Utah. The study compared the younger and the older DLI learners' oral narrative retelling production in order to provide information regarding the Mandarin narrative developmental trend of the DLI learners. A total of ten first graders and ten fifth graders who spoke English as their native language from a Mandarin DLI program in Utah were involved in this study. Oral narratives were elicited via retelling a story. MANOVA tests were run to detect any significant differences at the macrostructure and microstructure levels of the participants' narratives. The results showed significant differences in the older learners for many macrostructure and microstructure features; however, certain components in both macrostructure and microstructure features remain at similar levels. The results could be explained by children's typical progress in oral narrative development (e.g. progressing from word level through sentence and story formation), the DLI curriculum, and the difference between the Chinese and English language features.

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Oral narrative retelling; dual language immersion; Mandarin Chinese

Introduction

Narration, defined as 'oral discourse that recapitulates a series of real or imaginary events, usually in temporal order' (Zhang et al. 2019, 477), is used by people from different cultures and of all ages to describe their experience, share information, and form relationships with others; hence, narrative ability is critical and universally valued (Sheng et al. 2020). Narrative ability is not only seen as the foundation of communication (Gagarina 2016), but also is identified as one of the crucial components that predicts children's literacy abilities and academic achievement later in school (Sheng et al. 2020; Snow 2002). Méndez et al. (2018) explained that the ability to narrate a coherent story involves the use of decontextualized language, which focuses on describing information not in the current context and therefore requires the speaker to use complex linguistic structures similar to that of written language. The use of decontextualized language in narration serves as a bridge to help connect children's oral and written language abilities. Although narration is crucial in predicting children's literacy abilities, no extended literature has documented the development of bilingual children' narrative skills in their home or second language (Hipfner-Boucher et al. 2015). Within the dual language immersion (DLI) research, which this study emphasized, focus has been on comparing DLI and English-only students' academic performance rather than DLI students' language development (Lucero 2018). However, a study (Lucero, Donley, and Bermúdez 2021) which investigated emerging Spanish-English bilingual children's English oral narrative retells suggested that bilingual children's linguistic skills take a longer timeline to develop compared to English-only students;

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therefore; it is necessary that researchers begin investigating emergent bilingual children's oral narratives throughout the primary years of schooling to gain more knowledge about their development. This study intended to reduce the research gap by conducting a preliminary investigation on Mandarin Chinese DLI learners' development of oral narrative retelling (ONR) in order to provide a profile of Mandarin Chinese DLI learners' strengths and weaknesses in narrative ability. The results of this study offer information regarding the micro- and macrostructural components of Chinese-English bilingual children's ONR, which is currently lacking in the research field. This new information can be used as the base information for Mandarin Chinese DLI language teachers to develop effective methods to increase students' narrative skills and for DLI researchers to further explore learners' narrative development.

L1 narrative development

Current literature with a focus on children's first language (L1) has found that children's L1 narrative skills begin to develop approximately at age three (Roth 2009). Toddlers approximately three years old are able to make causal connections between events in a story. During preschool years, children build up their oral narrative experience in collaborative storytelling with their parents, caregivers, and friends (Riley and Burrell 2007). By the age of five to six, children have a sufficient repertoire of stories that they are able to narrate episodes of a story that provide detailed information about and connections between the characters, their motives, and their actions (Olson and Gee 1988) and can extend from oral to written narrations (Engel 1995). Children's narrative abilities continue to develop in the years that follow with increased complexity, lexical items, and story length.

A more in-depth description of a child's narration development can be discussed using the macrostructure and the microstructure components of narration. Macrostructure pertains to the organization of the narration including characters in the story, time and place of the story, events, actions, and consequences in the story, and a description of the characters' mental states, all of which are interrelated and together contribute to the quality of the child's narration (Stein and Glenn 1979). The majority of the current narrative macrostructure literature is based on Stein and Glenn's (1979) components of story grammar (SG) (see the Macrostructure Assessment section for more detail). According to Johnston (2006), components identified in SG are interconnected and act as a cognitive framework to reinforce the narrator's production of the story. In addition, Heilmann et al. (2010) pointed out that children's narrative development involves other areas of advancement beyond the components identified in SG as well, such as the use of literate language (e.g. elaborated noun phrases) and cohesive devices (e.g. using vocabulary to connect concepts across utterances) to achieve cohesion for making complex narrative productions. These skills were found to emerge in children's L1 oral narratives as early as age five and develop through adulthood.

On the other hand, microstructure refers to the use of linguistic skills (e.g. lexical and syntactic skills) to convey meaning (Sheng et al. 2020). Components in microstructure assist children in the construction of narratives and play essential roles in children's narrative development (Bishop and Donlan 2005). L1 Studies have illustrated that children's narrative ability in both macrostructure and microstructure components develop gradually and correlates with age and years of formal schooling (*Méndez et al. 2018*). Moreover, studies have found that macrostructure and microstructure skills are positively correlated. Gains in narrative organization skills support the development of the use of linguistic structures (Berman and Slobin 1994) while gains in the use of linguistic structures helps improve organization skills (Heilmann et al. 2010). However, the results from current L1 research does not provide much insight regarding how macrostructure and microstructure components of a bilingual child's narration evolves. The next section discusses the current bilingual narration findings and points out the gap in young bilingual learners' narration research and the need of this study.

Narrative development of young bilingual learners

Existing literature on the development of the macrostructure and microstructure of young bilingual learners' narrative development in the target language is sparse. These studies consisted of investigations of different narrative development lengths and involved young participants of different ages. For example, Gámez and González (2019) focused on both the macrostructure and microstructure development of U.S. Spanish-English Latino learners and found that the participants' story structure complexity in Spanish advanced over an academic year. However, no significant growth was observed in their Spanish lexical diversity or grammar usage. These results seemed to indicate that for Spanish-English bilinguals, Spanish lexical diversity and grammar usage may require longer development periods. The findings reported in Gagarina's study (2016) of Russian-German bilingual children were aligned with that of Gámez and González's (2019) in terms of the development of story complexity in the target language. In Gagarina's study, the researcher reported that the macrostructure of the participants' Russian (home language) narratives including the story structure, story complexity, and internal state words significantly improved between the preschool and first-grade period. Gagarina stated that this finding might be explained by the explicit teaching of narrative skills in the Russian curriculum of the DLI program, suggesting the effect of teaching methods on the young learners' narrative development in their heritage language. Another study which echoes the findings of the previous studies is Uccelli and Páez's (2007) investigation of the narrative development of U.S. Spanish-English bilingual children, which also reported that the participants' narratives advanced in the area of the macrostructure (e.g. story structure) and that no significant gain was found in the areas of microstructure (e.g. lexical complexity). The researchers stated that the results implied that different components of narrative discourse seem to develop independently in a language, especially during the primary learning years.

While the results of the aforementioned studies suggested that elementary bilingual children tended to illustrate significant gains at the macrostructure level and no significant development at the microstructure level, results from other studies suggested otherwise. For instance, Almgren and Manterola (2016) conducted a longitudinal study on the narrative development of Spanish-speaking children learning Basque as a second language in a DLI program in Spain. By comparing the narrative production of the same children when they were five, eight, and 11 years old, the researchers found that the lexical aspects of the narratives in Basque showed the clearest development. Another aspect that illustrated continuous narrative development in Basque was the narrative organization. With the age increase, the participants produced more detailed temporal links to different episodes of the story. The researchers concluded that the DLI program seemed to successfully foster both the macrostructure and the microstructure components of the participants' narrative development in the second language. Another study which pinpointed the DLI program curriculum as a factor influencing the children's narration development was Lucero's (2018) study of U.S. DLI Spanish-English bilingual children. Lucero found that at the microlevel, the participants' Spanish narratives improved significantly in terms of lexical diversity from kindergarten to second grade; however, no significant gain was found in other features of the narratives. The researcher suspected that the DLI program might not have exposed the participants to complex language or demonstrated how to deploy diverse vocabulary to produce complex narratives in Spanish.

The summary of studies in Table 1 shows that noticeably, the findings of bilingual children's narrative development in their heritage or second language were inconsistent in the literature. The inconsistencies could be due to the different study designs including different narrative tasks given, different time lengths of narrative development targeted for investigations, and the participants' age differences. In addition, it is equally notable that the majority of the U.S. studies had a focus on the Spanish narrative development of Latino heritage learners. The researchers of these studies often pointed out that many of the findings could be explained by the curriculum design or lack of it in the particular programs in which the participants were enrolled, and the different developmental periods required to acquire specific linguistic features in Spanish. The different

Table 1. Summary of studies on the narrative development of young bilingual learners.

Authors	Study Location	Learners	Significant Microstructure Gain in the Heritage Language	Significant Macrostructure Gain in the Heritage Language
Gámez and González (2019)	USA	Spanish-English (Spanish Heritage)	no significance	story structure
Gagarina (2016)	Germany	Russian-German (Russian heritage)	not studied	story structure, story complexity, and internal state words
Uccelli and Páez (2007)	USA	Spanish-English (Spanish Heritage)	no significant growth in lexical complexity	story structure
Almgren and Manterola (2016)	Spain	Spanish-Basque (Spanish Heritage)	lexical complexity	narrative organization
Lucero (2018)	USA	Spanish-English (Spanish Heritage)	lexical diversity	no significance

developmental paths found in the narratives in different languages imply that separate assessments for each language are needed (Uccelli and Páez 2007). For instance, certain aspects in the microstructure component in the Chinese language, such as Chinese classifiers is more complicated and challenging than in other languages and require a longer time for children to master (For more details, see the Chinese-specific Features in Microstructure section). Considering that the emphasis of bilingual children's narrative studies has been on assessing Spanish as a heritage language and that there is a lack of research on assessing the narrative development of young learners studying a second language, this study, with a focus of the narrative development of the DLI children learning Mandarin Chinese as a second language, can contribute new insights to the field.

Using narrative as an assessment tool for young bilingual leaners

Researchers have identified several points which address the appropriateness of using narrative as a way to investigate bilingual children's language ability and development. First, narrative can illustrate a child's language use in a comparatively natural context (Gagarina et al. 2016) as narratives are commonly used at school (e.g. narrating about the stories they learned in class regarding the origin of the Chinese New Year) and in a child's personal life (e.g. describing the events that happened surrounding the preparation of a family member's birthday celebration to a friend) (Westerveld and Gillon 2010). Second, narrative generates samples of a child's language use allowing researchers to analyze how knowledgeable a child is about the target language's linguistic features and structures (Berman 1995). Based on Berman and Slobin's (1994) theory of the listener, in order to narrate successfully, a child needs to use referential strategies, which require multiple linguistic features such as macrostructure (e.g. story goals and outcomes) and microstructure (e.g. complex syntax and lexical diversity) to pinpoint the main characters in the events, and appropriately describe the connections between the main characters and the other characters and between events so that information in the narration can be easily inferred by the listener. Third, the use of narrative is deemed as a less biased tool, especially for investigating bilingual children's oral ability, as the nature of the task reflects language-universal skills such as planning, organizing, summarizing and monitoring the narrative message for coherence (Fiestas and Peña 2004). Last, narrative ability is developmentally sensitive as it involves a cognitive component that illustrates a child's 'language-general capacities' (Paradis, Genesee, and Crago 2010, 221); therefore, using it as an assessment tool when children's language development evolves quickly during their first few years of primary school can be very informative.

Lever and Sénéchal (2011) suggest that a type of narrative, ONR, that is, organizing a coherent retell of a story that is heard earlier, may be simpler for children to illustrate their narrative ability compared to spontaneously generating a story. The elicitation procedure of ONR, which exposes children to the vocabulary, grammar, and relationships of story events by listening to the story first, helps scaffold the children's oral language production in the retell (Méndez et al. 2018). For

example, before eliciting a narration from children, researchers can show a video clip of the story narration or tell the story to the children first. Considering that the participants in this study are young primary learners who only learned and spoke the target language, Mandarin Chinese, as a second language in the school setting, ONR is deemed as an appropriate tool to assess the oral ability of the participants.

Informed by the previous literature, this study included narrative measures that represent the productivity, complexity, and diversity categories of the microstructure measures. This study also adopted macrostructure coding schemes that take the holistic approach in measuring young learners' ONR in the target language, and account for the use of literate language and cohesive devices, both of which were added to the microstructure measures. Details regarding the specific coding schemes adopted in this study are discussed in the following sections.

Macrostructure assessment

Schachter and Craig's (2013) story grammar (SG) codes were adopted as one of the analysis tools to analyze the macrostructure of the ONR in this study. The codes included nine features suitable for analyzing young learners' narratives. The nine SG features consist of (1) Characters, (2) Setting, (3) Initiating Event, (4) Attempts, (5) Plans, (6) Internal Responses, (7) Reactions, (8) Consequences, and (9) Ending (see definitions and examples of each feature in Appendix 1). How well the nine SG features are utilized together depicts how well the narrator organizes the narration (Schachter and Craig 2013). The researcher and a trained research assistant (RA) examined the transcripts independently to score the narratives. The score for each SG feature was the sum of the occurrences of that feature. The inter-rater reliability of the SG scores was 98%.

While the SG coding schema helps analyze the macrostructure of the participants' ONR in terms of how they organize the story, Miller, Andriacchi, and Nockerts (2016) narrative scoring scheme (NSS) was adopted to extend beyond the analyses of the SG features. NSS identifies seven skill areas in the narrative process and requires the narration raters to examine the narrative as a whole. The seven areas include: (1) Introduction, (2) Character Development, (3) Mental and Emotional States, (4) Referencing/Listener Awareness, (5) Conflict/Resolution and Event/Reaction, (6) Cohesion, and (7) Conclusion (see definitions and examples of each area in Appendix 2). According to Miller et al., the use of NSS in addition to SG allows the researchers to provide an index of participants' overall macrostructural narrative ability as NSS adds features not emphasized in SG such as cohesion, referencing, connecting events, and rationale for characters' behavior. For each transcript, each of the seven skill areas was scored on a scale between zero and five. A score of five is defined as 'proficient'. A score of three is defined as 'emerging', and a score of one means 'minimal'. A score of zero was given when a participant told a wrong story, produced an utterance that was unintelligible for the examiner to comprehend the story, or did not complete a task. The participants' final NSS scores in each skill area was the average of the scores given by the researcher and the RA.

Microstructure assessment

Microstructure was measured by computing the Number of Chinese Characters (NC), the Number of Different Words (NDW), the Mean Length of Utterance (MLU), the number of Chinese Classifiers (NCC), and the Number of Aspect Markers (NAM) for each ONR. The researcher and the RA computed the five measures individually before meeting together to resolve any differences. The inter-rater reliability of the five microstructure measures was 96%. The NC represents productivity, the NDW refers to lexical diversity, while the MLU, the NCC, and the NAM illustrate semantic and grammatical complexity in the participants' ONR (see Appendix 3 for a list of the macro- and microstructure feature names and their corresponding abbreviations). The NCC and the NAM are linguistically specific to Chinese. The next section explains the importance of including NCC and the NAM in this study.

Besides the microstructure measures mentioned above, Schachter and Craig's (2013) microstructure coding schema, story literary techniques (SLTs), was adopted to help examine microstructure features, specifically, lexical items, that the participants used to elaborate and make the ONR interesting beyond the plot development. The SLTs examine what specific lexical items children use to convey meaning and make the narration more compelling to listeners. The SLTs include (1) Story Conventions (e.g. Once upon a time), (2) Character Interactions (e.g. After he finished eating, he told the old lady that he would help her with Chinese New Year Celebration), (3) Conjunctive Devices (e.g. then), and (4) Adverbs or Adjectives (e.g. beautifully or beautiful). Schachter and Craig explained that unlike SG or NSS, which analyze the plot development of the narration, SLTs focused on linguistic skills that help make the narration more interesting; hence, SLTs are considered elements in the microstructure. Each participant's ONR was coded for the four SLTs. The researcher and the RA examined the transcripts independently to score the SLTs. The score for each SLT feature was the sum of the occurrences of that feature. The inter-rater reliability of the microstructure measures was 98%.

Chinese-specific features in microstructure

Chinese classifiers are 'free morphemes making the class of the noun they co-occur with' (Grüter, Lau, and Ling 2020, 222). It is obligatory to use a classifier in Chinese between a number and a noun (e.g. a [classifier] house), a demonstrative and a noun (e.g. this [classifier] house), and a quantifier and a noun (e.g. many [classifier] houses). The decision to use a certain classifier depends on the inherent properties of the noun they denote. For example, the classifier, 粒 (grain), is used to indicate objects that are small and round (e.g. a grain of rice). Approximately 900 classifiers are documented in the book, *A Dictionary of Chinese Classifiers* (Zhang 2007). Erbaugh (2006) reported that it takes time for Chinese speaking children to learn and expand their vocabulary in classifiers as understanding and sorting different semantic categories rooted in various classifiers is challenging.

Similar to the Chinese classifiers, aspect markers are also a special grammar feature in Chinese that could be difficult to master for children. In Chinese, grammatical morphemes are used to indicate different perspectives on a situation. There are two aspect markers: perfective morphemes (e.g. 了and 过) and progressive morphemes (e.g. 正在 and 着). Perfective morphemes are used to indicate action completion or that a situation has formed while progressive morphemes are used to illustrate that an action is in progress. Shu (2004) found that older Chinese speaking children produced a higher NAM than younger children, suggesting a relationship between the growth of the NAM and age.

Research questions

This study intended to investigate the Utah Mandarin Chinese elementary DLI students' narrative development through the task of ONR. The limited understanding of Mandarin Chinese DLI children's narrative development prompted this study to post the following questions:

(1) What are the differences (if any) of the Chinese DLI first and fifth graders' Mandarin Chinese ONR performance at the macrostructure level?
(2) What are the differences (if any) of the Chinese DLI first and fifth graders' Mandarin Chinese ONR performance at the microstructure level?

Method

The study context

This study was conducted in Utah, which is one of the pioneer states to legislate funding at the state level for one-way DLI programs in multiple languages critical to Utah's future economic

development (Chinese, French, German, Portuguese, Russian, and Spanish) since 2009. The majority of the students enrolled in the program were native English speakers with limited to no proficiency in the target language. The state DLI programs use the 50:50 model, in which learners receive half of their instruction in English and the other half in Mandarin Chinese, taught by two separate teachers. The Utah DLI elementary program usually begins at first grade and ends by sixth grade. Table 2 illustrates the allocation of the Chinese DLI instructional medium by content areas from first to sixth grade. The table shows that the instructional medium of a subject alters every few years with the aid of subject reinforcement in the other language.

In terms of the target language proficiency, the Utah model expects that by the end of sixth grade, the students will be Intermediate Mid in listening, and Intermediate Low in speaking, reading, and writing (Utah Dual Language Immersion 2021b). By investigating the ONR performance differences between the first and fifth graders, this study hoped to offer a clear picture of the developmental trend of the Chinese DLI learners' narrative ability from the beginning toward the end of the primary years in the program.

Participants

The participants were ten first graders (six female and four male) and ten fifth graders (four female and six male) in a one-way Mandarin Chinese DLI program in Utah. To participate in this study, participants were required to not be identified as students who received special education (e.g. language impairment or learning disability), implying typical development of the participant group. Parents of the potential participants who met the inclusionary criteria (non-heritage family, typical development, English-speaking, and starting DLI from first grade) who agreed to have their children be involved in this study signed the study consent form. All of the participants were Caucasian native English speakers who had no Chinese heritage background and did not study Mandarin Chinese as a second language before enrolling in the DLI program. The DLI program where this study was conducted had two classes in each grade level from first to sixth grades. Based on the demographic information in Utah (NeighborhoodScout 2021), the

Table 2. Utah's Chinese elementary DLI instructional model.

Grade Levels	Instruction
1–3	*In Mandarin
	Math (20%)
	Science and Social Studies (15%)
	Mandarin Chinese Literacy (15%)
	*In English
	English (35%)
	Science and Social Studies Reinforcement (15%)
4–5	*In Mandarin
	Math Reinforcement (8.5%)
	Mandarin Chinese Literacy (25%)
	Science (16.5%)
	*In English
	Math (16.5%)
	English Language Arts (25%)
	Social Studies and Science Reinforcement (8.5%)
6	*In Mandarin
	Science (12.5%)
	Mandarin Chinese Literacy (25%)
	Social Studies (12.5%)
	*In English
	Math (20%)
	English Language Arts (25%)
	Social Studies and Science Reinforcement (5%)

Source: Utah Dual Language Immersion (2021a)

demographic background of the students in the school where the DLI program resided illustrated a dense monoracial Caucasian population (92.9%) compared to the state average (76.2%). The percentage of the students (20%) who were eligible to receive free or reduced lunch was lower than the state average (33%), and the number of household adults with at least a Bachelor's degree (39%) was higher than the state average (34%), depicting a highly homogenous group with high socioeconomic status of the students. The homogenous nature of the students lessened the factors that might complicate the comparison between students in the first and the fifth grades.

Procedure

The participants were asked to complete the ONR task in the late spring of the academic year. The RA met with the participants one-on-one in a quiet corner of the classroom to elicit the participants' ONR. The story used in this study to be retold by the participants was a well-known Chinese folklore story regarding the origin of Chinese New Year. The story was presented in video form on YouTube, which the participants watched as a class during Chinese New Year time. The RA printed out 20 screenshots of the story and used them as a picture book to narrate the story to the participants. The RA was trained to follow the elicitation protocol suggested by the Bilingual Spanish/English Story Retell Databases (2021). To summarize the steps, the RA modeled the story in Mandarin Chinese by showing the 20 screenshots one by one while narrating parts of the story script related to each screenshot. After the RA finished telling the story, the RA asked the student to retell the same story using the 20 screenshots. The participants were asked to give as much detail as possible and start retelling the story from screenshot 1. During the ONR, the RA purposely used minimal open-ended prompts, such as, 'Tell me more', 'You are doing great', or 'That sounds interesting' when the participants stopped retelling or said, 'I don't know.' The elicitation protocol ensured that the ONR collection procedure was accurate and efficient.

The participants' narratives were audio recorded and transcribed by the RA, who was highly proficient in the target language. The researcher reviewed the recordings and read the transcriptions independently to determine if there were any discrepancies between the recordings and the transcriptions. After the review was completed, the RA and the researcher met together to discuss the discrepancies found and resolve the differences. The inter-rater reliability of the transcriptions was 97%. After the transcriptions were finalized, the narratives were coded for the microstructure and macrostructure measures. The inter-rater reliabilities of the macrostructure and microstructure measures are reported in the following sections.

Data analysis

In order to investigate the differences of the microlevel and macrolevel performance of DLI learners' Mandarin Chinese ONR between first and fifth grades, four separate MANOVAs were run for the measures of (1) SG, (2) NSS, (3) NC, NDW, MLU, NCC, and NAM, and (4) SLTs. The first two measures represent the macrostructure features while the last two measures represent the microstructure features. For all four MANOVA tests, the independent variable was grade level. Eta squared (η^2) was calculated to illustrate the effect size of significant group differences. All of the tests in this study used an alpha of 0.01 as the significance level for analyses in order to avoid any untenable assumption of homogeneity and potential type 1 errors.

Results

Macrostructure measures

To answer Research Question 1, 'What are the differences (if any) of the Chinese DLI first and fifth graders' Mandarin Chinese ONR performance at the macrostructure level?', two MANOVA tests, one for SG and one for NSS, were run. The results of the MANOVA test for SG showed that the

Table 3. The Mandarin Chinese ONR performance of first- and fifth-graders on measures of SG variables.

	Mean		Standard deviation	
SG Variables	First Grade	Fifth Grade	First Grade	Fifth Grade
Character	1.80	4.60	0.42	0.70
Setting	0.4	3.30	0.70	0.67
Initiating Event	1.0	1.50	0.67	0.71
Attempts	1.0	2.20	0.47	0.63
Plans	1.0	1.80	0.47	0.63
Internal Responses	2.40	2.10	3.78	0.74
Reactions	1.10	1.40	0.88	0.97
Consequences	0.70	1.80	0.67	1.14
Ending	1.60	2.90	0.97	0.88

effect of grade level on SG, $F(9, 10) = 17.942$, $p < 0.00$, $\eta^2 = 0.942$; Power = 0.991 was significant suggesting significant differences between first and fifth graders' SG measures in Mandarin ONR performance. The value of η^2 suggested a large effect and the observed power was very strong. The mean of each SG component shown in Table 3 illustrated that the fifth graders scored higher in all components than the first graders.

The follow-up univariate analyses (see Table 4) demonstrated that five of the nine variables in SG were significantly different between groups. The fifth graders were significantly more advanced in Mandarin Chinese ONR in the following SG components: Character, Setting, Attempts, Plans, and Ending. The significant results on the five SG components suggest that compared to the first graders, the fifth graders were more advanced in introducing the main characters and the story context, describing the main characters' plan and actions to solve the problem in the story, and summarizing the ending of the story. Contrarily, Initiating Event, Internal Responses, Reactions, and Consequences were not significantly different in both groups. The non-significant results of the four SG components show that the first and the fifth graders performed similarly in introducing the cause of the problem in the story, describing the character's reactions and feelings to the problem, and stating the outcome of the actions to solve the problem.

The results of the MANOVA test for NSS indicated that the effect of grade level on NSS, $F(7, 12) = 5.721$, $p < 0.004$, $\eta^2 = 0.769$; Power = 0.961, was significant. The value of η^2 suggested a large effect and the observed power was strong. The means and standard deviations of NSS measures shown in Table 5 demonstrated that the fifth graders scored higher in all seven NSS variables than the first graders.

The follow-up univariate analyses (See Table 6) revealed that the older participants were significantly more advanced in all but the variable of Referencing. These results mean that the fifth graders were better able to introduce the story characters and setting, describe the significance of characters, their emotions and any conflict or event that led to advancing the plot of the story, be logical on the sequence of details in the events, and use concluding statements to end the story. However, the fifth graders and the first graders were similar in appropriately using antecedents to achieve referential cohesion.

Microstructure measures

To answer research questions 2, 'What are the differences (if any) of the Chinese DLI first and fifth graders' Mandarin Chinese ONR performance at the microstructure level?', two MANOVA tests

Table 4. Univariate analyses: SG.

Between-subjects effects	df	F	Sig.	Partial Eta Squared	Observed Power
Character	1	39.20	0.00	0.867	1.00
Setting	1	42.05	0.00	0.832	1.00
Attempts	1	7.20	0.00	0.563	0.99
Plans	1	3.20	0.005	0.364	0.858
Ending	1	8.45	0.006	0.356	0.846

Table 5. The Mandarin Chinese ONR performance of first- and fifth-graders on measures of NSS variables.

	Mean		Standard deviation	
NSS Variables	First Grade	Fifth Grade	First Grade	Fifth Grade
Introduction	1.20	2.98	0.33	0.88
Character Development	1.68	2.98	0.54	0.72
Mental/Emotional States	1.70	2.73	0.48	0.49
Referencing	2.18	2.50	0.67	0.50
Conflict Resolution	1.55	2.83	0.57	0.53
Cohesion	1.58	2.93	0.47	0.71
Conclusion	1.83	2.80	0.66	0.69

Table 6. Univariate analyses: NSS.

Between-subjects effects	df	F	Sig.	Partial Eta Squared	Observed Power
Introduction	1	35.87	0.00	0.666	0.998
Character Development	1	20.80	0.00	0.536	0.991
Mental/Emotional States	1	22.09	0.00	0.551	0.993
Conflict Resolution	1	26.69	0.00	0.597	0.998
Cohesion	1	25.18	0.00	0.583	0.997
Conclusion	1	10.55	0.004	0.370	0.867

Table 7. The Mandarin Chinese ONR performance of first- and fifth-graders on measures of NW, NDW, and MLU variables.

	Mean		Standard deviation	
NC, NDW, MLU, NCC, and NAM Variables	First Grade	Fifth Grade	First Grade	Fifth Grade
NC	108.30	382.00	40.72	80.68
NDW	20.10	94.60	5.34	16.89
MLU	8.99	17.49	4.95	3.43
NCC	0.10	11	0.32	3.74
NAM	0.2	1.6	0.42	2.36

were run. The results of the first test illustrated that there was a significant effect of grade level on the microstructure measures of the NC, the NDW, the MLU, the NCC, and the NAM, $F(5, 14) = 53.359$, $p < 0.00$, $\eta^2 = 0.978$; Power = 0.991. The value of η^2 suggested a large effect and the observed power was strong. Table 7 revealed that the fifth graders had considerably larger numbers of almost all of the five variables compared to the first graders.

The follow-up univariate analyses (See Table 8) showed that for all except the variable NAM, the microstructure measures were significant. This finding indicated that, while the older learners' Mandarin Chinese ONR was lengthier with the use of more diverse lexical items and more complex semantics and grammar, the younger and the older learners used similar number of aspect markers in the narration.

The results of the second test for the microstructure measures showed that there was a significant effect of grade on SLTs, $F(4, 15) = 16.21$, $p < 0.00$, $\eta^2 = 0.812$; Power = 0.998. The value of η^2 suggested a large effect and the observed power was strong. Table 9 illustrated the means and standard deviations of the SLT variables.

The follow-up univariate analyses (See Table 10) identified Conjunctives as the only variable being significant for the effect of grade level. This finding indicated that the fifth graders used significantly more conjunctives to make the ONR more cohesive than the first graders; however, the first and fifth

Table 8. Univariate analyses: NW, NDW, MLU.

Between-subjects effects	df	F	Sig.	Partial Eta Squared	Observed Power
NC	1	91.714	.000	.836	1.000
NDW	1	176.803	.000	.908	1.000
MLU	1	19.923	.000	.525	.988
NCC	1	84.262	.000	.824	1.000

Table 9. The Mandarin Chinese ONR performance of first- and fifth-graders on measures of SLT variables.

	Mean		Standard deviation	
SLT Variables	First Grade	Fifth Grade	First Grade	Fifth Grade
Story Conventions	0.70	1.20	0.95	1.03
Character Interaction	5.50	6.60	1.27	2.12
Conjunctives	0.70	12.70	0.67	4.55
Adjectives/Adverbs	14.50	14.50	7.32	4.08

Table 10. Univariate analyses: SLTs.

Between-subjects effects	df	F	Sig.	Partial Eta Squared	Observed Power
Conjunctives	1	68.13	.000	.791	1.000

graders used similar numbers of story conventions, character interaction, and adjectives/adverbs as the elaborative techniques in their narration.

Discussions

The purpose of this study is to provide a detailed analysis of aspects of the narrative development of U.S. Mandarin Chinese DLI learners in the elementary years. The first- and fifth-grade DLI learners' ONR were compared by running MANOVA tests using different microstructure (SLTs, NC, NDW, MLU, NCC, and NAM) and macrostructure (SG and NSS) measures as dependent variables while grade level was used as the independent variable. Significant differences between the two groups were found in many of the components in both macro- and microstructure measures. The older learners' ONR was more developed in many of the areas compared to the young learners. In the following paragraphs, more details regarding the significance in each MANOVA test from this study is discussed.

Narrative ability at the macrostructure level relies on one's cognitive ability and is not language specific (Paradis, Genesee, and Crago 2010). The results of the SG and NSS measures in this study are in support of this claim. As the cognitive ability increases with age, the fifth-grade participants in this study improved in both their SG and NSS components. However, a further look into each individual component in the SG and NSS measures revealed that not all components had significant improvements. Within the SG measures, the fifth graders performed better in the areas of the Character, Setting, Attempts, Plans, and Ending components; however, the ONR performance in the components of Initiating Event, Internal Responses, Reactions, and Consequences were not significantly different between the first- and fifth-graders. One implication of the mixed results in the SG measures is that some SG components may be more difficult to master than the others and require more developmental time. This implication is supported by the findings of prior studies (Peña, Spaulding, and Plante 2006; Muñoz et al. 2003; Schachter and Craig 2013), which reported that some SG components such as Attempts were used more often than the others and some components such as Consequences were more difficult to use by young learners. However, several of the previous studies (Peña, Spaulding, and Plante 2006; Price, Roberts, and Jackson 2006; Schachter and Craig 2013) reported that the young participants in their studies were able to produce narratives with Initiating Events in their narration as young as preschool age, which is not the case in the current study. Both the first and fifth grade participants in this study had a low use of Initiating Event (1–1.5 times) in the ONR, showing no significant growth in this component. This implies that the DLI program needs to emphasize the teaching of how to effectively use the Initiating Event component in narration.

The second MANOVA test for macrostructure measures which contained the NSS components as dependent variables also yielded significant results. The fifth graders performed better in six out of the seven components and only one component (Referencing) in NSS was similar compared to the

first graders. According to Peterson and McCabe (1983), the NSS components such as Introduction and Mental/Emotional States, tend to be developmental, such that typical developing older learners usually perform better than younger learners, which helps explain the NSS results in this study. On the other hand, the Referencing component in NSS, which refers to the skill required to integrate local and global aspects of the narrative to reach coherence, was identified as a challenging skill to acquire and requires more time and practice to develop (Barnes, Kim, and Phillips 2014). Another possible reason that the scores of the Referencing component was similar between groups could be due to the lack of marked subject-verb agreement in Chinese, which is explained in detail in the next paragraph.

The results of the MANOVA test on the microstructure measures of NC, NDW, MLU, NCC, and NAM showed that the former four variables were significant, suggesting significantly more advanced skills of the fifth-grade participants in terms of narrative productivity, lexical diversity, and grammar complexity in Mandarin Chinese. This result could be attributed to the curriculum of the DLI program covering a good amount, and quality teaching of, Chinese. This result could also be explained by the lack of morphosyntactic transformations in Mandarin (Hao et al. 2018). Compared to Indo-European languages, Mandarin does not have different forms for a noun (e.g. apple vs. apples in English). Mandarin also does not have marked subject-verb agreement (e.g. yo tengo, tu tienes in Spanish). The lack of these features in Mandarin allows speakers to make fewer language errors and be more flexible in choosing language expressions. However, despite the significances found, a close look at the Chinese classifiers used in the participants' ONR revealed that while the older learners' use of classifiers (M = 11) was more frequent than the younger learners (M = 0.10), the only classifier all participants used was 个[gè]. Although 个 is considered the most commonly used classifier in Chinese (Zhang and Jiang 2016), many nouns still require specific classifiers. The low variety use of classifiers by the English-speaking participants could be explained by the distinct language differences between English and Chinese. Li and Thompson (1981) pointed out that for speakers of English, the use of Chinese classifiers is a striking feature for them and it is common to see adult L2 learners overusing the general classifier, 个 (Zhang and Lu 2013). It seems that 个 was also overused by the young L2 learners in this study. The ONR transcripts showed that while the first-grade participants used 个 sparsely, many fifth-grade participants used 个 incorrectly multiple times for nouns that require specific classifiers. If the older participants had the knowledge to use specific classifiers for different nouns, their frequency of the NCC would have been even higher. With respect to NAM, the only microstructure which did not yield significant results, the statistical results suggested that both the younger and the older learners did not master the Chinese grammar of aspect markers. The NAM for younger learners was 0.2 times on average while the older learners used them 1.6 times on average. The lack of use of Chinese classifiers other than 个 coupled with the extreme low use of aspect markers by both groups of participants implies that there was no narrative development in these grammar areas and the DLI program needs to emphasize the teaching of the special Chinese grammar features which are deemed especially difficult for young children.

The results of the MANOVA test on the microstructure measures of SLTs, which specifically measured elaborative techniques beyond plot development, illustrated that only one component, Conjunctives, was significant. The other SLT components were similar between the younger and the older groups. Previous studies (Glenn-Applegate et al. 2010; Schachter and Craig 2013) have attested that there is a connection between elaborative techniques (e.g. SLTs) and story complexity (e.g. SG and NSS) in preschool and elementary students' narration. Students who master elaborative techniques produce a more complex and developed plot. Although this study reported significant differences between the younger and the older participants' SG and NSS scores, the fifth graders' scores illustrated that there was still room to grow. Taking the NSS scores as an example, the average scores of the older participants' NSS components range between 2.50 and 2.98, which are a bit lower than 3 (defined as 'emerging'). The older participants still have a way to go to reach 5 (defined as 'proficient'). Hence, it is recommended that the DLI program's bilingual instruction should not only focus on the training of plot development in narratives, but also on how to

incorporate elaborative techniques. Aiming at teaching the techniques will help improve young learners' overall narratives.

In sum, the significant findings were partially aligned with the results reported in the bilingual narrative development literature. Similar to this study, Lucero's (2018) study also found significant development in the microstructure of young bilinguals' narrative, but Lucero reported no significant finding at the macrostructure level. Contrarily, many of the previous studies (Gagarina 2016; Gámez and González 2019; Uccelli and Páez 2007) reported significant growth in young bilingual learners' macrostructure development; however, these studies did not find any gain in the microstructure like in this study. The findings of this study were generally in support of Almgren and Manterola's (2016) study, which had a similar DLI learning context (mainstream young DLI learners learning a second language in elementary). Both this and Almgren and Manterola's studies reported significant findings in many components in micro- and macrostructures (e.g. story and lexical complexity). The similar findings between this and Almgren and Manterola's study implies that it is possible that the distinct findings between this and the other previous studies could be attributed to the learning context difference (e.g. participants studying the target language as their home language in other studies vs. participants studying the target language as a second language in this study). However, narrative development of microstructure features that are unique to the target language may appear different in the results of studies which share similar teaching contexts. For instance, this study found that neither the younger nor older participants mastered the use of Chinese classifiers and aspect markers, which are unique and challenging grammar aspects for learners that studies focusing on a different target language did not encounter.

Limitations

This preliminary study on Utah Mandarin Chinese DLI students' Mandarin Chinese narrative development has offered some insights into the strengths and weaknesses of this understudied group. Although the results of this study add new information to the literature of U.S. bilingual children's narrative development, this study is not without limitations. First, the sample size of this study was small and was constrained to a single DLI program in Utah. Future studies will need to expand the geographic scope to include more participants from different DLI programs in the nation. Second, this study only investigated Mandarin Chinese, the target language of the DLI program, and did not include any Chinese-English cross-language analysis. Since the DLI participants received both English and Chinese instruction daily, it is important for future studies to analyze any possible cross-language relationships on their narrative development. Third, this study used only one type of narrative, ONR, as the assessment tool to investigate participants' narration in Mandarin Chinese. Future studies need to explore other reliable assessment tools to give a wholistic picture of Mandarin Chinese DLI primary learners' Chinese narrative development. Lastly, as some aspects of narrative development are language and context specific, it is urgent to conduct more bilingual narrative development studies in a context other than Spanish-English, as they are almost non-existent in the U.S. studies. Without sufficient research, it is difficult to make any generalizations about specific young bilingual groups' narrative development and suggestions for effective instruction.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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References

Almgren, M., and I. Manterola. 2016. "The Development of Narrative Skills in Learners of Basque as a Second Language." *Education Inquiry* 7 (1): 27627.

Barnes, A. E., Y. S. Kim, and B. M. Phillips. 2014. "The Relations of Proper Character Introduction to Narrative Quality and Listening Comprehension for Young Children from High Poverty Schools." *Reading and Writing* 27 (7): 1189–1205.

Berman, R. A. 1995. "Narrative Competence and Storytelling Performance: How Children Tell Stories in Different Contexts." *Journal of Narrative and Life History* 5 (4): 285–313.

Berman, R. A., and D. I. Slobin. 1994. *Relating Events in Narrative: A Crosslinguistic Developmental Study*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.

Bilingual Spanish/English Story Retell Databases. 2021. http://saltsoftware.com/media/wysiwyg/reference_database/BilSEStoryRetellRDBDoc.pdf.

Bishop, D., and C. Donlan. 2005. "The Role of Syntax in Encoding and Recall of Pictorial Narratives: Evidence from Specific Language Impairment." *British Journal of Developmental Psychology* 23 (1): 25–46.

Engel, S. 1995. *The Stories Children Tell: Making Sense of the Narratives of Childhood*. New York: W. H. Freeman, Times Books, Henry Holt and Company.

Erbaugh, M. 2006. "Chinese Classifiers: Their use and Acquisition." In *Handbook of East Asian Psycholinguistics* (Vol. 1), edited by P. Li, L. H. Tan, E. Bates, and O. J. L. Tzeng, 39–51. Cambridge, UK: Cambridge University Press.

Fiestas, C. E., and E. D. Peña. 2004. "Narrative Discourse in Bilingual Children: Language and Task Effects." *Language, Speech, and Hearing Services in Schools* 35 (2): 155–168.

Gagarina, N. 2016. "Narratives of Russian-German Preschool and Primary School Bilinguals: Rasskaz and Erzaehlung." *Applied Psycholinguistics* 37 (1): 91.

Gagarina, N., D. Klop, I. M. Tsimpli, and J. Walters. 2016. "Narrative Abilities in Bilingual Children." *Applied Psycholinguistics* 37 (1): 11–17.

Gámez, P. B., and D. González. 2019. "A Comparison of Narrative Skill in Spanish-English Bilinguals and Their Functionally Monolingual Spanish-Speaking and English-Only Peers." *International Journal of Bilingualism* 23 (1): 329–348.

Glenn-Applegate, K., A. Breit-Smith, L. M. Justice, and S. B. Piasta. 2010. "Artfulness in Young Children's Spoken Narratives." *Early Education and Development* 21 (3): 468–493.

Grüter, T., E. Lau, and W. Ling. 2020. "How Classifiers Facilitate Predictive Processing in L1 and L2 Chinese: The Role of Semantic and Grammatical Cues." *Language, Cognition and Neuroscience* 35 (2): 221–234.

Hao, Y., L. Sheng, Y. Zhang, F. Jiang, J. de Villiers, W. Lee, and X. L. Liu. 2018. "A Narrative Evaluation of Mandarin-Speaking Children with Language Impairment." *Journal of Speech, Language, and Hearing Research* 61 (2): 345–359.

Heilmann, J., J. F. Miller, A. Nockerts, and C. Dunaway. 2010. "Properties of the Narrative Scoring Scheme Using Narrative Retells in Young School-age Children." *American Journal of Speech-Language Pathology* 19: 154–166.

Hipfner-Boucher, K., T. Milburn, E. Weitzman, J. Greenberg, J. Pelletier, and L. Girolametto. 2015. "Narrative Abilities in Subgroups of English Language Learners and Monolingual Peers." *International Journal of Bilingualism* 19 (6): 677–692.

Johnston, J. R. 2006. "Narratives Schemes and Processes." In *Thinking About Child Language: Research to Practice*, edited by J. R. Johnston, 145–152. Eau Claire, WI: Thinking Publications.

Lever, R., and M. Sénéchal. 2011. "Discussing Stories: On How a Dialogic Reading Intervention Improves Kindergartners' Oral Narrative Construction." *Journal of Experimental Child Psychology* 108 (1): 1–24.

Li, C., and S. A. Thompson. 1981. *Mandarin Chinese: A Functional Reference Grammar*. Berkeley, CA: University of California Press.

Lucero, A. 2018. "Oral Narrative Retelling among Emergent Bilinguals in a Dual Language Immersion Program." *International Journal of Bilingual Education and Bilingualism* 21 (2): 248–264.

Lucero, A., K. Donley, and B. Bermúdez. 2021. "The English Referencing Behaviors of First-and Second-Grade Spanish–English Emergent Bilinguals in Oral Narrative Retells." *Applied Psycholinguistics* 42 (5): 1243–1261.

Méndez, L. I., J. Perry, Y. Holt, H. Bian, and S. Fafulas. 2018. "Same or Different: Narrative Retells in Bilingual Latino Kindergarten Children." *Bilingual Research Journal* 41 (2): 150–166.

Miller, J. F., K. Andriacchi, and A. Nockerts, eds. 2016. *Assessing Language Production Using SALT Software: A Clinician's Guide to Language Sample Analysis*. Middleton, WI: SALT Software, LLC.

Muñoz, M. L., R. B. Gillam, E. D. Peña, and A. Gulley-Faehnle. 2003. "Measures of Language Development in Fictional Narratives of Latino Children." *Language, Speech, and Hearing Services in Schools* 34 (4): 332–342. doi:10.1044/0161-1461(2003/027).

NeighborhoodScout. 2021. Utah Demographic Data. https://www.neighborhoodscout.com/ut/.

Olson, M. W., and T. C. Gee. 1988. "Understanding Narratives: A Review of Story Grammar Research." *Childhood Education* 64 (5): 302–306.
Paradis, J., F. Genesee, and M. B. Crago. 2010. *Dual Language Development and Disorders: A Handbook on Bilingualism and Second Language Learning*. Baltimore, MD: Paul H. Brookes.
Peña, E. D., T. J. Spaulding, and E. Plante. 2006. "The Composition of Normative Groups and Diagnostic Decision Making: Shooting Ourselves in the Foot." *American Journal of Speech-Language Pathology* 15: 247–254.
Peterson, C., and A. McCabe. 1983. *Developmental Psycholinguistics: The Three Ways of Looking at a Child's Narrative*. New York, NY: Plenum Press.
Price, J. R., J. E. Roberts, and S. C. Jackson. 2006. "Structural Development of the Fictional Narratives of African American Preschoolers." *Language, Speech, and Hearing Services in Schools* 37: 178–190.
Riley, J., and A. Burrell. 2007. "Assessing Children's Oral Storytelling in Their First Year of School." *International Journal of Early Years Education* 15 (2): 181–196.
Roth, F. P. 2009. "Children's Early Narratives." In *Emergent Literacy and Language Development*, edited by P. Rhyner, 153–191. New York, NY: Guilford Press.
Schachter, R. E., and H. K. Craig. 2013. "Students' Production of Narrative and AAE Features During an Emergent Literacy Task." *Language, Speech, and Hearing Services in Schools* 44 (3): 227–238. doi:10.1044/0161-1461(2013/12-0034).
Sheng, L., H. Shi, D. Wang, Y. Hao, and L. Zheng. 2020. "Narrative Production in Mandarin-Speaking Children: Effects of Language Ability and Elicitation Method." *Journal of Speech, Language, and Hearing Research* 63 (3): 774–792.
Shu, K. L. 2004. The acquisition of aspect markers by Mandarin Speaking children (Doctoral dissertation). Boston University, MA. Retrieved from http://search.proquest.com/docview/305215146?pq-origsite=summon&accountid=7118
Snow, C. E. 2002. *Reading for Understanding: Toward a Research and Development Program in Reading Comprehension*. Santa Monica, CA: RAND Corporation.
Stein, N., and C. Glenn. 1979. "An Analysis for Story Comprehension in Elementary School." In *New Directions in Discourse Processing (Vol. 2)*, edited by R. Freedle, 53–120. Norwood, NJ: Ablex.
Uccelli, P., and M. M. Páez. 2007. "Narrative and Vocabulary Development of Bilingual Children from Kindergarten to First Grade: Developmental Changes and Associations among English and Spanish Skills." *Language, Speech, and Hearing Services in Schools* 38 (3): 225–236. doi:10.1044/0161-1461(2007/024).
Utah Dual Language Immersion. 2021a. Utah Dual Language Immersion Proficiency Targets. http://administrators.utahdli.org/wp-content/uploads/2017/06/Proficiency-Targets.pdf.
Utah Dual Language Immersion. 2021b. Instructional Model. http://www.utahdli.org/instructional-model/.
Westerveld, M. F., and G. T. Gillon. 2010. "Profiling Oral Narrative Ability in Young School-Aged Children." *International Journal of Speech-Language Pathology* 12 (3): 178–189.
Zhang, H. 2007. "Numerical Classifiers in Mandarin Chinese." *Journal of East Asian Linguistics* 16: 43–59.
Zhang, L., and S. Jiang. 2016. "A Cognitive Linguistics Approach to Chinese Classifier Teaching: An Experimental Study." *Journal of Language Teaching and Research* 7 (3): 467–475.
Zhang, J., and X. Lu. 2013. "Variability in Chinese as a Foreign Language Learners' Development of the Chinese Numeral Classifier System." *The Modern Language Journal* 97 (s1): 46–60.
Zhang, F., A. McCabe, J. Ye, Y. Wang, and X. Li. 2019. "A Developmental Study of the Narrative Components and Patterns of Chinese Children Aged 3–6 Years." *Journal of Psycholinguistic Research* 48 (2): 477–500.

Appendices

Appendix 1. Definitions and examples of the Nine Story Grammar (SG) Features

SG Features	Definitions	Example from the Participants' Narrations translated from Chinese into English
(1) Characters	Introducing the main characters	'there is an old woman'
(2) Setting	Introducing the context	'the last day of every year'
(3) Initiating Event	Describing the event that causes the main character to respond in action	'the huge dragon liked to eat people'
(4) Attempts	Attempts to solve the issue in the story	'she asked for red papers and place them at home'
(5) Plans	Description of planned actions to solve the issue	'she planned to fight against the monster by killing it this year'
(6) Internal Responses	Character's reactions, thoughts, and feelings to the initiating events.	'he felt powerful'
(7) Reactions	Emotional reaction to the events in the story	'he started to cry'
(8) Consequences	The results of the attempts	'he ran fast cause he did not want to see the red paper'
(9) Ending	A summary statement of the story	'this is why they called January first "guonian"'

Appendix 2. Definitions and examples of the seven components in the Narrative Scoring Scheme (NSS)

Components	Definition	Example from the Participants' Narrations translated from Chinese into English
(1) Introduction	Describing details of main characters and story context	'a monster came out to eat people every year'
(2) Character Development	Pointing out the significance of the main characters	'the old man showed up and told the old woman that he knew ways to fight against the monster'
(3) Mental and Emotional States	Expressing the mental states of the main and supporting characters	'this old woman was very sad'
(4) Referencing/Listener Awareness	Clear references throughout story.	'after eating the dumplings, he said … this old man said … '
(5) Conflict/Resolution and Event/Reaction	Clearly identifying all conflict, resolutions, and reactions	'the noise was loud, which hurt the monster's ears'
(6) Cohesion	Logical plot development and smooth transition between events	'the old man disappeared after he saw that the monster ran away'
(7) Conclusion	Using general concluding statements	'Since then, every Chinese New Year, people wear red clothes and play with firecrackers'

Appendix 3. Full names and their abbreviations of components in macrostructure and microstructure

Abbreviations	Full Names
SG	Story Grammar
NSS	narrative scoring scheme
SLTs	story literary techniques
NC	the Number of Chinese Characters
NDW	the Number of Different Words
MLU	the Mean Length of Utterance
NCC	the number of Chinese Classifiers
NAM	the Number of Aspect Markers