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Narrative comprehension in 5-year-old Vietnamese-speaking children using the multilingual assessment instrument for narratives

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ABSTRACT

This study addresses how elicitation modes and socio-demographic factors influence narrative macrostructure understanding in 5-year-old Vietnamese-speaking children. A convenience sampling of 311 typically developing children were assessed using the multilingual assessment instrument for narratives (MAIN). Narrative comprehension was evaluated through 10 standardized questions for both retelling (cat story) and storytelling (baby goats story) modes. Findings revealed a significant advantage for retelling (M=7.21, SD=2.31) over storytelling (M=5.73, SD=2.50; p<.001), highlighting the role of linguistic scaffolding. While children mastered identifying character goals, challenges remained in explaining internal states and making causal inferences. Narrative comprehension was independent of gender, location, and general communication skills, but significantly influenced by maternal education level (p<.05). Vietnamese narrative development follows universal patterns, yet deep comprehension is shaped by specific environmental inputs. This study establishes a normative baseline for narrative skills within the Vietnamese preschool curriculum and provides a validated tool for speech and language therapists to facilitate early identification and targeted interventions.

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1. INTRODUCTION

Narrative comprehension serves as a foundational pillar for academic success [1], acting as a critical bridge between oral language development and later literacy [2]. In Vietnam, the necessity of investigating this skill is underscored by the current pedagogical framework. While the Vietnam National Development Standards for 5-year-old children [3] emphasize broad language competencies (from Standards 11 to 14) such as index 31 on comprehending simple information, they remain relatively broad and do not explicitly specify narrative comprehension as a distinct cognitive-linguistic construct. Furthermore, preschool curricula emphasize language and communication, yet narrative comprehension, the ability to understand story structure, causal links and character motivations, is not explicitly assessed [4]. Without clear benchmarks, teachers and therapists lack tools to identify children at risk of language delays.

To address these gaps, global research utilizes standardized frameworks such as the multilingual assessment instrument for narratives (MAIN) [5]–[7]. Recent cross-linguistic studies demonstrate that while 5-year-olds typically begin to master story macrostructure, reaching a milestone where they correctly answer 60-70% of comprehension questions, they continue to struggle with more abstract causal inferences [8]. According to Bohnacker and Gagarina [8], children at this age successfully infer transparent, concrete goals early on; however, explaining internal states as reactions to complex plotlines remains a later achievement. Crucially, research across various language groups, such as Finnish, Dutch, and German, indicates that elicitation modality significantly impacts performance, with children often achieving higher comprehension accuracy in retelling tasks, where an auditory model is provided, compared to storytelling tasks that require independent generation [7]. This suggests that while basic narrative comprehension is largely acquired by age five, the ability to process "distant" events and abstract motivations represents a continuing developmental challenge. Lindgren and Bohnacker [9] highlight that age and language exposure significantly impact inferential comprehension, while further research suggests that narrative comprehension is a multidimensional process involving working memory and vocabulary, following a universal developmental hierarchy regardless of specific language typologies [10]–[13].

Despite the growing body of international research, there is a significant lack of large-scale normative data on narrative comprehension among Vietnamese preschoolers, leaving educators without evidence-based standards to evaluate and support early narrative development. Furthermore, without detailed benchmarks, educators and clinicians cannot accurately determine if a child's narrative difficulties stem from a lack of exposure or a genuine developmental language disorder (DLD) [14], [15]. This gap is particularly critical for the emerging speech and language therapy profession in Vietnam, which currently lacks standardized instruments to support data-driven early identification and intervention [16], [17].

This study is the first to establish a normative baseline for narrative comprehension in Vietnamese 5-year-old children, providing empirical data to supplement national preschool standards. The specific aims of this study are: i) to evaluate the narrative comprehension levels of typically developing 5-year-old Vietnamese children using the MAIN framework; ii) to compare performance across different elicitation modes (retelling vs. storytelling); and iii) to determine the influence of socio-demographic factors, such as maternal education and geographic location, on these skills.

Employing a cross-sectional design with a convenience sample of 311 children, this study utilizes the Vietnamese version of the MAIN tool to assess macrostructure understanding. The primary novelty of this manuscript lies in its status as the first study to establish a normative baseline for curriculum development and speech-language therapy practice in narrative comprehension in 5-year-old Vietnamese preschoolers. By positioning these findings within the international literature on cross-linguistic narrative development, this study contributes a granular understanding of narrative proficiency that can support the refinement of early childhood language assessments and intervention strategies in Vietnam.

The theoretical significance of this research lies in its verification of universal narrative development patterns within a tonal syllabic language like Vietnamese. Practically, the findings benefit educators, educational curriculum designers, and policymakers by providing a specific framework for index 31 of the 5-year-old national standards [3], [4]. Furthermore, it offers clinicians a validated assessment procedure, ensuring that children at risk for language delays receive early, accurate support based on evidence-based benchmarks rather than general observations.

2. METHOD

2.1. Present participants

This study adopted a descriptive, cross-sectional design to provide a normative baseline for narrative comprehension within the Vietnamese context. A convenience sampling technique was employed to recruit participants from six urban and six rural preschools across three provinces in Vietnam. While the sampling aimed for geographic diversity, the cohort primarily represented the Kinh ethnic group. Prior to data collection, informed written consent was obtained from parents and teachers, and verbal assent was secured from each child participant in a child-friendly manner.

Strict inclusion and exclusion criteria were applied to ensure data robustness. Participants were included if they: i) were aged 5 years; ii) were currently enrolled in a kindergarten program; iii) belonged to the Kinh ethnic group with Vietnamese as their first language; and iv) demonstrated typical development, defined as having communication scores within the "white zone" of the ages and stages questionnaires, third edition (ASQ-3) [18]. Conversely, children were excluded if they: i) had a documented history of a disability (e.g., autism spectrum disorders, intellectual disabilities, or hearing/visual impairment); ii) were exposed to a second language for more than 20% of their daily time; or iii) failed to complete both narrative tasks. The final sample consisted of 311 typically developing children (M_{age}=64.7 months, SD=3.46, range: 58-73 months). The cohort included 188 children (60.5%) in the 5;0-5;5 age group and 123 children (39.5%) in the

5;6-5;11 age group. Demographic distribution involved 169 females (54.3%) and 142 males (45.7%), with 167 residents from urban areas (53.7%) and 144 from rural areas (46.3%), as seen in Table 1.

Table 1. Descriptive statistics for narrative comprehension scores across stories and demographic groups

Group		N (%)	Cat (retelling)		Goats (storytelling)		Overall average	
			M	SD	M	SD	M	SD
Total sample		311	7.21	2.31	5.73	2.50	12.94	4.03
Gender	Female	169 (54.3)	7.36	2.29	5.75	2.53	13.11	4.04
	Male	142 (45.7)	7.04	2.32	5.70	2.35	12.74	4.03
Region	Urban	167 (53.7)	7.09	2.50	5.80	2.47	12.89	4.01
	Rural	144 (46.3)	7.35	2.38	5.64	2.43	12.99	4.08
Age group	5;0-5;5	188 (60.5)	7.04	2.31	5.59	2.46	12.63	4.11
	5;6-5;11	123 (39.5)	7.48	2.28	5.93	2.43	13.41	3.89

2.2. Instruments

Narrative samples were collected using the Vietnamese version of the MAIN [19], [20] with the official permission of the authors. The cat and baby goats story sequences were selected for this study. According to the MAIN manual, the retelling mode involves providing the story photo sequence, telling the story to the child and then asking 10 standardized comprehension questions. The storytelling mode involves providing the story photo sequence and asking the child to answer 10 standardized questions. The 10 comprehension questions per story target three core macrostructure components: the characters' goals (questions 1, 4 and 7), internal state reactions (questions 2, 5 and 8), and causal explanations (questions 3, 6, and 9), with an additional question (question 10) assessing the child's ability to make global story inferences. Each sub-component (goals, internal states, and explanations) yields a maximum score of three points, allowing for a total comprehension score of 10 per story.

2.3. Procedure

Participants who met the inclusion criteria were invited to provide MAIN narrative comprehension samples. The retelling mode was used for the cat story, and the storytelling mode was used for the baby goats story. For each story, child participants were asked 10 questions immediately after the retelling (cat story) or storytelling (baby goats story) task. All responses were audio-recorded using a Zoom H1n recorder to ensure accuracy for subsequent scoring. The recorded responses were transcribed and scored independently by two native Vietnamese speech and language therapists. Each correct answer was assigned 1 point, while incorrect or missing answers received 0 points, resulting in a maximum comprehension score of 10 per story. Statistical analyses were performed using SPSS (version 26.0).

Descriptive statistics, including means and standard deviations, were calculated to determine the overall narrative comprehension proficiency of the 5-year-old Vietnamese cohort (research aim 1). Subsequently, to examine the associations between comprehension scores and story components (goals and internal states), stimuli modes (retelling and storytelling), and inference types (research aim 2), paired-sample t-tests, and repeated-measures analysis of variance (ANOVA) were conducted. Finally, Pearson correlation coefficients were utilized to evaluate the relationship between MAIN comprehension scores and the ASQ-3 communication domain scores (research aim 3). Furthermore, independent-sample t-tests were used to compare scores across gender, age group (5;0-5;5 and 5;6-5;11), and regions (urban and rural). A multiple linear regression analysis was also performed to identify which demographic factors (i.e., maternal education level) and child-related variables served as the strongest predictors of narrative comprehension performance in this population.

To maintain high data quality and minimize scoring bias, the following control techniques were implemented. First, a unified administration protocol was followed for all participants. Second, all research assistants received comprehensive training prior to data collection. Third, data collection sessions were monitored by onsite supervisors. Fourth, narrative samples were audio-recorded and transcribed verbatim before analysis. The transcription and scoring were conducted by two independent native Vietnamese speech and language therapists, and the inter-rater reliability for the comprehension scores reached a high level of agreement, exceeding 95%.

3. RESULTS

3.1. General narrative comprehension proficiency

The internal consistency of the MAIN comprehension questions was evaluated using Cronbach's alpha. The analysis yielded coefficients of .705 for the cat story and .703 for the baby goats story,

respectively. These values indicated acceptable reliability for a narrative comprehension instrument of this length and complexity in the early childhood population.

As shown in Table 1, children performed noticeably better in the retelling mode (cat story: M=7.21, SD=2.31) compared to the storytelling mode (baby goats story: M=5.73, SD=2.50). Descriptive statistics across demographic subgroups revealed a relatively consistent performance. Females achieved slightly higher scores (M=13.11, SD=4.04) than males (M=12.74, SD=4.03). Regarding regional distribution, children in urban (M=12.89, SD=4.01) and rural areas (M=12.99, SD=4.08) showed nearly identical overall proficiency. In terms of age, the older cohort (5;6-5;11) demonstrated higher average scores (M=13.41, SD=3.89) compared to the younger group (5;0-5;5, M=12.63, SD=4.38), suggesting a developmental progression in narrative understanding during the sixth year of life.

To further investigate the difficulty level of specific narrative elements, an item analysis was conducted, as shown in Figure 1. In the cat story (retelling), children showed the highest success rates in identifying internal states as reactions (question 2: 82.3%, question 5: 82%); whereas, the most challenging item was explaining those internal states (question 9: 57.6%). In contrast, the baby goats story (storytelling) appeared significantly more difficult, with success rates dropping across all categories. While the majority of children could still identify the character's goals (question 4: 77.2%) and inferencing (question 10: 81.7%), performance was lowest on questions requiring complex causal explanations (question 9: 28.6%). These results indicate that while 5-year-old Vietnamese children are beginning to grasp story macrostructure, their ability to verbalize causal links and internal motivations is highly dependent on the elicitation mode.

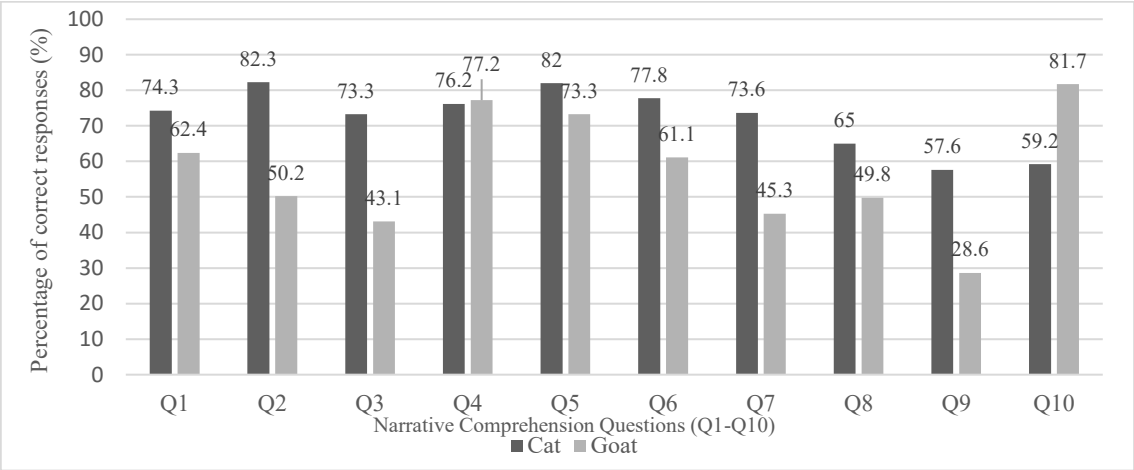

Figure 1. Percentage of correct responses for MAIN narrative comprehension questions across cat (retelling) and baby goats (storytelling) stories

3.2. Narrative components and elicitation modes

The elicitation modes significantly impacted performance across nearly all macrostructure components, as seen in Table 2. Children achieved higher scores in the retelling mode (cat story) for goals, reactions, and explanations. Notably, the most substantial drop between modes occurred in the internal states as explanations category, which fell from M=2.09 (SD=.96) in retelling to M=1.33 (SD=1.01) in storytelling. This suggested that while children could recognize causal explanations when provided with a model, they struggled to generate these links independently. Conversely, a unique pattern emerged for Inferences, where the children performed significantly better in the storytelling mode for the baby goats story (M=.82) than in the retelling mode for the cat story (M=.59). This finding indicated that the ability to make inferences might be less dependent on the linguistic model provided during retelling and more influenced by the specific visual stimuli or the conceptual clarity of the inferential task within the goat sequence.

To determine if these observed differences were statistically significant, paired-samples *t*-tests were conducted to compare children's performance between the cat (retelling) and baby goat (storytelling) stories. As shown in Table 3, the elicitation mode had a profound impact on comprehension scores across all macrostructure components. Overall, children achieved significantly higher total scores in the retelling task (M=7.21, SD=2.31) than in the storytelling task (M=5.73, SD=2.50), $t(310)=10.37$, $p<.001$. Notably, differences between retelling and storytelling tasks showed a medium effect size (Cohen's d=.59) confirming the robustness of the scaffolding effect, as in Table 3.

Table 2. Mean scores for narrative components by story

Component	Cat (retelling) M (SD)	Goat (storytelling) M (SD)
Goals (questions 1, 4, and 7) (max score=3)	2.24 (.83)	1.85 (.90)
Internal states as reactions (questions 2, 5, and 8) (max score=3)	2.29 (.85)	1.73 (1.01)
Internal states as explanations (questions 3, 6, and 9) (max score=3)	2.09 (.96)	1.33 (1.01)
Inferences (question 10) (max score=1)	.59 (.49)	.82 (.39)

Table 3. Paired samples t-test results comparing Cat (retelling) and Goat (storytelling) components

Pair	Component pairs	Mean diff.	t	df	p	Cohen's d
1	Total score (cat - goat)	1.48	10.37	310	<.001	.59 (medium)
2	Goals (questions 1, 4, and 7)	.39	6.49	310	<.001	.37 (small)
3	Reactions (questions 2, 5, and 8)	.56	9.79	310	<.001	.55 (medium)
4	Explanations (questions 3, 6, and 9)	.76	11.82	310	<.001	.67 (medium)
5	Inferences (question 10)	-.23	-6.59	310	<.001	-.37 (small)

A notable exception to the general trend of retelling superiority was found in the inference component (question 10). Contrary to the other macrostructure tasks, children performed significantly better in the storytelling mode for the baby goats story (M=.84, SD=.36) than in the retelling mode for the cat story (M=.60, SD=.49), t(310)=-6.13, p<.001. This reversal suggested that inferential understanding in 5-year-old children might be more sensitive to specific visual cues and the conceptual clarity of the story sequence rather than the elicitation mode itself. Specifically, the baby goats story in the MAIN tool contained highly salient visual indicators of the characters' emotions and imminent conflict, which likely provided sufficient perceptual scaffolding for children to make correct inferences even without a prior linguistic model.

3.3. Relationships between narrative comprehension, developmental skills and demographic factors

The relationship between narrative comprehension and various developmental and demographic factors were examined. Pearson correlation analyses revealed no significant relationship between total narrative comprehension scores and general communication skills as measured by the ASQ-3 (r=.024, p=.727). Similarly, no significant correlation was found between children's age in months and their narrative performance (r=.027, p=.630). These results suggest that narrative macrostructure understanding in this cohort is a specialized skill that remains relatively independent of broad developmental milestones and age-related variations within the 5-year-old group. In addition, independent samples t-tests were conducted to assess the impact of gender and geographic location on comprehension. The results showed no significant differences in total comprehension scores based on gender (males: M=9.87; females: M=10.08; t(309)=.799, p=.425) or geographic area (urban: M=9.92; rural: M=10.00; t(309)=-.219, p=.826). These findings indicate that narrative comprehension abilities are relatively uniform across these demographic variables in the current cohort of Vietnamese 5-year-olds.

Conversely, a one-way ANOVA revealed that maternal education had a significant impact on children's narrative comprehension (F(4,306)=4.19, p=.003). Post-hoc comparisons using the Tukey honestly significant difference (HSD) test identified specific disparities. Children whose mothers had a college/vocational degree (*trung cấp*, *cao đẳng*) scored significantly higher than those whose mothers only completed lower secondary education (*trung học cơ sở*) (mean difference=2.58, p=.007). Similarly, children of mothers with a bachelor's degree (*cử nhân đại học*) outperformed those in the lower secondary group (mean difference=2.18, p=.002). No other significant differences were found between groups. These results highlight that higher maternal educational attainment, particularly beyond the high school level, serves as a robust predictor for more advanced narrative performance in preschool-aged children, as shown in Table 4.

Table 4. Associations between total narrative comprehension scores and developmental, demographic factors

Factors	Test statistic	Value	*p* value	Result
Developmental skills				
ASQ-3 communication	Pearson *r*	.024	.727	Not significant
Demographics				
Gender (male vs. female)	t-test (*t*)	.799	.425	Not significant
Location (urban vs. rural)	t-test (*t*)	-.219	.826	Not significant
Age group (5;0-5;5 vs. 5;6-5;11)	t-test (*t*)	.027	.630	Not significant
Maternal education	ANOVA (*F*)	4.19	.003	Significant

4. DISCUSSION

The present study provides a comprehensive evaluation of narrative comprehension in Vietnamese 5-year-old children using MAIN. By comparing elicitation modes, examining macrostructure components, and analyzing the influence of developmental and demographic factors, three key findings have emerged that contribute to our understanding of early cognitive-linguistic development in a tonal syllabic language context. First, the results demonstrated that elicitation mode significantly impacts narrative understanding. Children consistently achieved higher comprehension scores in the retelling task compared to the storytelling task. This gap was most pronounced in the internal state explanations category, where children struggled to independently articulate the causal links between a character's emotions and their actions without a prior linguistic model. Second, an analysis of macrostructure components revealed a hierarchical pattern of mastery. While Vietnamese children showed a robust ability to identify character goals, they faced considerable challenges with inferences and explanations. Interestingly, a unique exception was observed in the baby goats story, where children performed better on inferential questions during storytelling than in the retelling of the cat story, suggesting that visual saliency might play a role in complex reasoning. Finally, the study found that narrative comprehension at this age was remarkably stable across most demographic variables. Factors such as gender, geographic location, and general developmental milestones (ASQ-3) did not significantly differentiate children's performance. However, maternal education emerged as a significant predictor, with children of university-educated mothers demonstrating superior narrative skills. This highlighted the critical role of the home literacy environment (HLE) over broader socioeconomic or regional factors.

4.1. Cross-linguistic comparison of narrative comprehension

The narrative comprehension performance of Vietnamese 5-year-olds in the current study aligns with international developmental trends observed in previous research using the MAIN protocol. Specifically, the retelling scores (M=7.21) and storytelling scores (M=5.73) in this cohort are comparable to those reported for Swedish [21], Italian [22], Polish [23], and German [24] preschoolers. Typically developing children across these diverse contexts demonstrate similar mastery of narrative macrostructure when provided with the scaffolding of a model story. This cross-linguistic consistency suggests that the ability to grasp core narrative components develops at a synchronized pace across diverse language typologies, from the inflected systems of Germanic and Slavic languages to the tonal and syllabic structure of Vietnamese, as presented in Table 5.

Table 5. Cross-linguistic comparison of narrative comprehension scores

Study	Language	Sample	Age group (y; m)	Method	Scores (M, SD) for 5;0-5;5	Scores (M, SD) for 5;6-5;11
Current study	Vietnamese	311 typically developing, monolingual	5;0-5;11	Retelling (cat)	7.04 (2.31)	7.48 (2.28)
				Telling (baby goat)	5.59 (2.46)	5.93 (2.43)
Bohnacker [21]	Swedish	52	5;0-7;11	Overall	6.1 (1.7; range: 2-9)	
				Swedish	7.1 (1.8; range: 2-9)	
				English	6.4 (1.5; range: 3-9)	
Roch *et al.* [22]	Italian	62 Italian-English	5;5 and 6;6	Retelling	8.5 (.8) for Italian 6.1 (2.4) for English	
				Telling	6.4 (1.5) for Italian 3.6 (1.7) for English	
Otwinowska *et al.* [23]	Polish	75 Polish-English and 75 monolinguals	3;0 – 7;11	Retelling (mono)	7.42 (1.6)	
				Telling (mono)	6.67 (1.78)	
Wehmeier [24]	German	436 mono- and bilingual German	4;6-5;11	Retelling (cat)	6.8 (1.8)	7.0 (1.7)
				Telling (baby goat)	5.1 (1.8)	5.6 (1.6)

4.2. The role of scaffolding in narrative comprehension

The significantly higher scores in the retelling mode compared to the storytelling mode (p<.001) underscore the critical role of linguistic scaffolding in early narrative development. This finding aligns with a robust body of cross-linguistic evidence [21]–[31]. Children perform better in retelling because the linguistic model provide scaffolding for causal explanations. Storytelling requires independent generation, which is more cognitively demanding. Previous research suggests that comprehension performance following a model story (retelling) is inherently linked to short-term memory capacity, as the child must store and retrieve specific informational cues provided by the examiner. Conversely, generating a narrative without a prior model (storytelling) may pose a greater challenge, as children may overlook critical structural components of the plot due to their current stage of narrative development [22]. Consequently, as evidenced in the previous findings [23], [26], children consistently achieve superior comprehension

scores in the retelling mode compared to the independent storytelling mode. This phenomenon can be attributed to the "model story" acting as a linguistic scaffold, which is particularly beneficial for children in the early stages of narrative development or those with varying language abilities.

The most striking evidence of this scaffolding effect is observed in the internal state explanations (e.g., Q3, Q6, and Q9). While children can recognize these explanations after hearing them in the retelling of the cat story (M=2.18), there was a marked decline in the storytelling of the baby goats story (M=1.40). This performance gap indicates that while 5-year-old Vietnamese children possess the receptive capacity to understand causal links between a character's internal state and their behavior, they have not yet fully internalized these structures for independent production. Furthermore, this consistency is found from findings from across studies in European and Indo-European monolingual and bilingual contexts, such as Arabic-French [10], Swedish-Arabic [21], Italian-English [22], Polish-English [23], German [24], Finnish-Swedish [25], Turkish [26], Turkish-Swedish [27], Croatian-Italian [28], Dutch [29], Greek [30], and Turkish-German and Russian-German [31]. This suggests that the reliance on retelling as a scaffold is a universal cognitive-linguistic strategy. Despite the distinct typological features of syllabic and tonal languages, for example Chinese [32] and Vietnamese, the cognitive load required to integrate "internal states" into a coherent narrative macrostructure appears to be a common developmental threshold for preschoolers globally. This reinforces the value of using retelling not just as an assessment method, but as a crucial pedagogical tool in Vietnamese early childhood education to bridge the gap between simple event sequencing and complex causal reasoning. The ramification of this result is that educators should intentionally use model-based storytelling to reduce cognitive load, allowing children to focus on mastering the 'hidden' causal links of a story before being expected to produce them independently.

4.3. Universal and language-specific patterns in narrative comprehension

The findings of this study provide compelling evidence for the universality of narrative macrostructure development. Regardless of the Vietnamese linguistic typologies as being a syllabic and tonal language, the hierarchy of difficulty in comprehension questions mirrors that of children acquiring inflectional Indo-European languages [1]. The high accuracy in identifying goals across both stories suggests that the concept of "intentionality" is a fundamental cognitive building block that emerges early in child development globally. However, the consistent struggle with internal state explanations (questions 3, 6, 9) and inferences (question 10) highlights a shared developmental "bottleneck". In many international studies using MAIN, these components are identified as the most demanding because they require theory of mind (ToM), the ability to attribute mental states to others and understand how those states motivate behavior [30]. The fact that Vietnamese children follow this same pattern suggests that the challenge is not rooted in specific Vietnamese grammatical structures, but rather in the universal cognitive maturity required to process "hidden" causalities in a story. As noted by Pearson [13], these shared developmental patterns across different cultures confirm that understanding intentionality and mental states is a cross-linguistic milestone in social cognition. She highlights that the MAIN instrument effectively serves as a "time-traveling" bridge, connecting decades of narrative research to provide a reliable global baseline for identifying children who struggle to move beyond literal event description to deep inferential comprehension.

Interestingly, the superior performance on Inferences for the baby goats story compared to the cat story ($p<.05$) offers a unique language-specific or tool-specific insight. This could be interpreted as a result of the visual saliency of the baby goat illustrations, which may be more culturally or intuitively aligned with the experiences of Vietnamese children, allowing them to make logical leaps more easily than in the cat story. This nuance suggests that while the "what" (macrostructure) is universal, the "how" (the way children access that information) can be influenced by the specific stimuli provided. Critically, the significant impact of maternal education found in our study suggests that the development of these ToM-related skills is heavily mediated by the complexity of language used at home. This implies that children from lower-literacy backgrounds may require more explicit instruction in internal state vocabulary to achieve parity with their peers.

4.4. Associations between maternal education and narrative comprehension

A notable finding of this study is the significant impact of maternal education on narrative comprehension, while other demographic factors, including gender, geographic location, and age group did not yield significant differences. These findings are similar with other international studies on narrative comprehension [24] and prior studies on Vietnamese-speaking narrative production [15]. The ANOVA and Tukey post-hoc results indicated that children whose mothers held a university degree outperformed those whose mothers had only completed lower secondary education. This finding reinforces international perspectives on the HLE. Maternal education is often a proxy for the quality and quantity of linguistic input a child receives. Higher maternal education likely reflects richer HLE, which support children's ability to make

causal inferences and explain internal states. In the Vietnamese context, more highly educated mothers are likely to engage in "shared book reading" and use more sophisticated, decontextualized language. These interactions often involve open-ended questions that challenge children to think about causal links and character motives, skills that are essential for high performance in the MAIN assessment.

The absence of significant differences between urban and rural groups in MAIN scores suggests that the national preschool curriculum for 5-year-olds in Vietnam is providing a relatively equitable foundation of basic narrative skills across the country. This parity may also be attributed to the unique environmental advantages of rural settings; while rural areas may lack certain educational facilities compared to cities, children there often have more frequent opportunities to engage with the natural environment. Consequently, the animal characters and outdoor scenarios featured in the MAIN stories (such as cats, goats, and birds) may be more familiar and integrated into the daily discourse of rural children than those living in highly urbanized areas. This environmental familiarity likely offsets infrastructural disadvantages, resulting in comparable narrative performance. However, the disparity based on maternal education remains, implying that for higher-order linguistic skills, such as understanding internal states and making inferences, targeted domestic interaction remains the decisive factor, outweighing regional or environmental differences. The stability of scores across gender and location indicates a promising level of developmental uniformity in the sampled regions. However, the disparity based on maternal education serves as a critical indicator for future policy; it suggests that standardized narrative tools like MAIN can come in handy for identifying "at-risk" children early, enabling targeted support that focuses on cognitive-linguistic reasoning rather than just surface-level vocabulary.

4.5. Practical implications for educators and policymakers

The findings offer critical implications for the Vietnamese educational landscape. For educators, the medium effect size of the retelling advantage (d=.59) justifies a shift from passive storytelling to active, scaffolded retelling tasks in the classroom. Teachers should use explicit linguistic models to help children bridge the gap between event sequencing and causal reasoning. For policymakers, the significant impact of maternal education highlights the need for family-literacy programs that support children from lower-literacy backgrounds. Furthermore, these results provide a validated framework for index 31 of the national standards. Integrating standardized tools like MAIN into the national curriculum will allow for data-driven identification of children at risk for language delays, ensuring they receive targeted support based on evidence-based benchmarks rather than subjective observation.

5. CONCLUSION

This study established the first normative baseline for narrative comprehension in 5-year-old Vietnamese-speaking children using the MAIN framework. The findings provided robust evidence that while Vietnamese preschoolers effectively identified concrete character goals, they faced a universal developmental bottleneck in explaining internal states and making causal inferences. A key theoretical contribution was the confirmation that narrative macrostructure followed a consistent developmental hierarchy even in a tonal, syllabic language like Vietnamese, independent of gender or geographic location. While maternal education emerged as a significant predictor of proficiency, the overall stability of scores suggested a promising level of developmental uniformity across the sampled urban and rural regions.

Practically, these results offered a granular, evidence-based expansion of "Index 31" within the Vietnam national standards for 5-year-old children, justifying the formal inclusion of narrative comprehension in the national preschool curriculum. By shifting the focus from surface-level event sequencing to "deep" comprehension of character motivations, this study provided Vietnamese educators and the burgeoning speech-language therapy profession with a validated framework to differentiate typical developmental variations from genuine language disorders. Future research should employ longitudinal designs to track how these preschool narrative milestones predict later academic success and expand the scope to include children from diverse ethnic minority groups to ensure broader representativeness in the Vietnamese context.

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AUTHOR CONTRIBUTIONS STATEMENT

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all adults and friendly assent from children participants included in this study.

ETHICAL APPROVAL

At the commencement of data collection, a formal institutional ethics committee for the specific field of speech-language and behavioral research had not yet been established in the country. However, the research proposal underwent rigorous internal departmental review prior to implementation. The study adhered to the international ethical principles of the Declaration of Helsinki. Furthermore, permission was obtained from the original authors of the MAIN to use the materials for research with Vietnamese-speaking children. Informed written consent was obtained from all adult participants (parents and teachers), and verbal assent was secured from each child participant in a child-friendly manner before direct assessment began. To ensure participant protection, strict protocols for privacy, voluntary participation, and data de-identification were maintained. All data were anonymized to prevent the identification of individual participants throughout all research phases.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [BP], upon reasonable request.

REFERENCES

[1] U. Bohnacker and N. Gagarina, *Developing narrative comprehension: multilingual assessment instrument for narratives*. Amsterdam: John Benjamins Publishing Company, 2020, doi: 10.1075/sibil.61.

[2] R. Dicataldo and M. Roch, "Direct and indirect pathways of variation in length of exposure to the majority language, cognitive and language skills in preschoolers' listening narrative comprehension," *Children*, vol. 8, no. 8, p. 636, Jul. 2021, doi: 10.3390/children8080636.

[3] Ministry of Education and Training (MOET), "Decision No. 4222/QD-BGDDT on Promulgating the Development Standards for Five-Year-Old Children (in Vietnamese)," Hanoi, Vietnam, 2024. [Online]. Available: https://thuvienphapluat.vn/van-ban/Giao-duc/Quyet-dinh-4222-QD-BGDDT-2024-Bo-chuan-phat-trien-tre-em-5-tuoi-638069.aspx

[4] Ministry of Education and Training (MOET), "Consolidated Document No. 01/VBHN-BGDĐT on Promulgating the Preschool Education Program," (in Vietnamese), Hanoi, Vietnam, 2017. [Online]. Available: https://thuvienphapluat.vn/van-ban/Giao-duc/Van-ban-hop-nhat-01-VBHN-BGDDT-Thong-tu-Chuong-trinh-giao-duc-mam-non-2017-342703.aspx

[5] N. V. Gagarina *et al.*, "MAIN: multilingual assessment instrument for narratives," *ZAS Papers in Linguistics*, vol. 56, p. 155, Jan. 2019, doi: 10.21248/zaspil.56.2019.414.

[6] N. Gagarina *et al.*, "MAIN: multilingual assessment instrument for narratives – revised," *ZAS Papers in Linguistics*, vol. 63, p. 20, Nov. 2019, doi: 10.21248/zaspil.63.2019.516.

[7] N. Gagarina and J. Lindgren, "New language versions of MAIN: multilingual assessment instrument for narratives – revised," *ZAS Papers in Linguistics*, vol. 64, p. 274, Aug. 2020, doi: 10.21248/zaspil.64.2020.543.
[8] U. Bohnacker and N. Gagarina, "Cross-linguistic development of narrative comprehension from A to Z," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 1–30, doi: 10.1075/sibil.61.01boh.
[9] J. Lindgren and U. Bohnacker, "Inferential comprehension, age and language: how German-Swedish bilingual preschoolers understand picture-based stories," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 61–98, doi: 10.1075/sibil.61.03lin.
[10] R. Fiani, G. Henry, and P. Prévost, "Narrative comprehension in Lebanese Arabic-French bilingual children," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 31–60, doi: 10.1075/sibil.61.02fia.
[11] F. Reali, J. Rivera Ibaceta, and K. Moreira Tricot, "The relationship between narrative comprehension, working memory and vocabulary in Uruguayan 4- to 8-year-old children: a longitudinal study," *Revista Latinoamericana de Psicología*, vol. 56, pp. 271–281, 2024, doi: 10.14349/rlp.2024.v56.27.
[12] J. Lindgren, F. Tselekidou, and N. Gagarina, "Acquisition of narrative macrostructure: a comprehensive overview of results from the multilingual assessment instrument for narratives," *ZAS Papers in Linguistics*, vol. 65, pp. 111–132, Mar. 2023, doi: 10.21248/zaspil.65.2023.623.
[13] B. Z. Pearson, "Commentary: time travel in the development of cross-linguistic narrative evaluation," in *Developing Narrative Comprehension*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 331–336, doi: 10.1075/sibil.61.11per.
[14] Q. Dam, G. Pham, I. Potapova, and S. Pruitt-Lord, "Grammatical characteristics of Vietnamese and English in developing bilingual children," *American Journal of Speech-Language Pathology*, vol. 29, no. 3, pp. 1212–1225, Aug. 2020, doi: 10.1044/2019_AJSLP-19-00146.
[15] G. T. Pham *et al.*, "Identifying developmental language disorder in Vietnamese children," *Journal of Speech, Language, and Hearing Research*, vol. 62, no. 5, pp. 1452–1467, May 2019, doi: 10.1044/2019_JSLHR-L-18-0305.
[16] M. Atherton, "The emerging profession of speech therapy in Vietnam through pioneering eyes," Ph.D. dissertation, The University of Melbourne, Melbourne, Australia, 2019.
[17] S. Eitel and H. V. Tran, *Speech and language therapy assessment in Vietnam*. The United States Agency for International Development (USAID), Vietnam Evaluation, Monitoring and Survey Services Project (VEMSS), 2017. [Online]. Available: https://pdf.usaid.gov/pdf_docs/PA00MJHP.pdf
[18] J. Squires and D. Bricker, *Ages & stages questionnaires, third edition (ASQ-3): a parent-completed child monitoring system*. Baltimore, MD: Brookes Publishing, 2009.
[19] N. Gagarina *et al.*, "MAIN: multilingual assessment instrument for narratives – revised. Vietnamese version. Translated and adapted by Tue Trinh, Giang Pham, Ben Phạm, Linh Pham, Hien Hoang, Tan Vu, and Mary Vu," (in Vietnamese), *ZAS Papers in Linguistics*, vol. 63, p. 20, Nov. 2019. [Online]. Available: https://www.leibniz-zas.de/fileadmin/media/Dokumente/ZASPiL/ZASPiL_63/MAIN_Vietnamese_2020_Revised.pdf
[20] T. Trinh, G. Pham, B. Phạm, H. Hoang, and L. Pham, "The adaptation of MAIN to Vietnamese," *ZAS Papers in Linguistics*, vol. 64, pp. 263–268, Aug. 2020, doi: 10.21248/zaspil.64.2020.581.
[21] U. Bohnacker, "Tell me a story in English or Swedish: narrative production and comprehension in bilingual preschoolers and first graders," *Applied Psycholinguistics*, vol. 37, no. 1, pp. 19–48, Jan. 2016, doi: 10.1017/S0142716415000405.
[22] M. Roch, E. Florit, and C. Levorato, "Narrative competence of Italian–English bilingual children between 5 and 7 Years," *Applied Psycholinguistics*, vol. 37, no. 1, pp. 49–67, Jan. 2016, doi: 10.1017/S0142716415000417.
[23] A. Otwinowska, K. Mieszkowska, M. Białecka-Pikul, M. Opacki, and E. Haman, "Retelling a model story improves the narratives of Polish-English bilingual children," *International Journal of Bilingual Education and Bilingualism*, vol. 23, no. 9, pp. 1083–1107, Oct. 2020, doi: 10.1080/13670050.2018.1434124.
[24] C. M. Wehmeier, "Narrative comprehension and its associations with gender and nonverbal cognitive skills in monolingual and bilingual German preschoolers," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 269–296, doi: 10.1075/sibil.61.09weh.
[25] S. Kunnari and T. Välimaa, "Narrative comprehension in simultaneously bilingual Finnish-Swedish and monolingual Finnish children," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 149–170, doi: 10.1075/sibil.61.05kun.
[26] S. Selvi-Balo and İ. Maviş, "A comparison of narrative skills of monolingual Turkish-speaking children with typical development and developmental language disorder: remote online assessment," *Folia Phoniatrica et Logopaedica*, pp. 1–22, Jul. 2025, doi: 10.1159/000547712.
[27] U. Bohnacker, B. Öztekin, and J. Lindgren, "Bilingual Turkish-Swedish children's understanding of MAIN picture sequences," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 99–148, doi: 10.1075/sibil.61.04boh.
[28] M. Roch and G. Hržica, "Narrative comprehension by Croatian-Italian bilingual children 5–7 years old," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 171–196, doi: 10.1075/sibil.61.06roc.
[29] E. Blom and T. Boerma, "Bilingual children's lexical and narrative comprehension in Dutch as the majority language," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 197–230, doi: 10.1075/sibil.61.07blo.
[30] E. Peristeri, M. Andreou, I. M. Tsimpli, and S. Durrleman, "Bilingualism effects in the narrative comprehension of children with developmental language disorder and L2-Greek," in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 297–330, doi: 10.1075/sibil.61.10per.
[31] N. Gagarina, N. Topaj, and N. Sürmeli, "Why do you think the boy would be unhappy if he saw what the cat was eating?" in *Developing Narrative Comprehension: Multilingual Assessment Instrument for Narratives*, U. Bohnacker and N. Gagarina, Eds., Amsterdam: John Benjamins Publishing Company, 2020, pp. 231–268, doi: 10.1075/sibil.61.08gag.
[32] R. T. Y. Kan, A. Chan, and N. Gagarina, "Investigating children's narrative abilities in a Chinese and multilingual context: Cantonese, Mandarin, Kam and Urdu adaptations of the multilingual assessment instrument for narratives (MAIN)," *Frontiers in Psychology*, vol. 11, p. 573780, Nov. 2020, doi: 10.3389/fpsyg.2020.573780.

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