

Development of narrative discourse in typically developing Tamil-Speaking children

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A Dissertation Submitted in Part of Fulfilment of the

Degree of Master of Science

Speech Language Pathology

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JUNE, 2026

CERTIFICATE

This is to certify that this dissertation entitled "**Development of narrative discourse in typically developing Tamil-speaking children**" is a bonafide work submitted as part of fulfilment of the degree of Master of Science (Speech Language Pathology) of the student with Registration Number P011124S123013. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other university for the award of any other Diploma or Degree.

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DECLARATION

This is to certify that this dissertation entitled "**Development of narrative discourse in typically developing Tamil-Speaking children**" is the result of my own study under the guidance of Dr. Amoolya.G., Assistant Professor of Speech Language Pathology, All India Institute of Speech and Hearing, Mysuru and has not been submitted earlier to any other university for the award of any other Diploma or Degree.

Mysuru
June, 2026

Registration no. P01II24S123013

Acknowledgements

The journey of AIISH is truly a dream, and I look with immense gratitude to all the individuals who have extended their love, support, and guidance that have carried me through every day. These accomplishments belong to everyone who stood beside me on this journey and defined it.

First and foremost, I bow my head in gratitude to **God the Almighty**. I have lived my dream at AIISH because of the faith and hope I had in God.

Thatha, Ammama and Maanikkama ,you people have strengthened me and made me a tougher one. Though you left me in the middle, the strength you cultivated helped me to move forward. I always remember you in my prayers.

I would like to thank **Dr M. Pushpavathi**, the Director of AIISH, for providing me with this amazing learning platform.

I would extend my heartfelt Thanks to my guide, **Dr Amoolya G**, for encouraging me throughout this dissertation work, helping me learn better, and providing me the space to work at my own pace. All the discussions so far have made me enjoy and learn more beyond the dissertation work. And you have been the best constructive critic, ma'am. Identifying mistakes and providing appreciation without any bias. Once again, thank you so much, ma'am, for the confidence you had in me and for choosing me even before you knew about me. Thank you, **Dr Vasanthalakshmi mam and Sahana mam**, for breaking the tough statistics part into simpler chunks and helping me understand it whenever I came across a clueless moment.

"தந்தை மகற்காற்று நன்றி அவையத்து

முந்தியிருப்பச் செயல்." (திருக்குறள் 67)

"The greatest duty of a father is to enable his child to stand with confidence and distinction before the learned."

Daddy, thank you for believing that your daughter would make it through this challenging journey. As this Kural beautifully explains, a father's greatest gift is to nurture confidence and prepare his child to stand fearlessly before the world. I think you are the example of that Kural . Every bit of confidence I carry today, every milestone I have achieved, and every challenge I have overcome is rooted in the faith you had in me long before I believed in myself. I know the sacrifices you made, the struggles you silently endured, the efforts you invested, and the hardships you faced so that I could pursue my dreams. This accomplishment is not mine alone—it is a reflection of your perseverance, love, and unwavering belief in me. Thank you, Daddy, for being the strength behind every step of this journey.

Amma, you are my everything. What else do I need when I have you? I have grown by seeing you and taking you as an inspiration in every way. The days you have cried for, the days you have prayed for and bared my absence can't be repaid, ma. I would proudly say that if I

became at least a fraction of you, it would be my greatest achievement. The confidence on the stage to speak, to carry lectures, and my creative classes are the parts that were secretly inspired by you. The good qualities of mine are what you sowed, Amma. I can't put my gratitude to daddy and you in this single page because it's worth my life. But I want to reassure you that, one day, you will be proud of me as this Kural explains.

"மகன் தந்தைக்கு ஆற்றும் உதவி இவன்தந்தை

என்னோற்றான் கொல் எனும் சொல்." (திருக்குறள் 70)

Rajesh Anna, my life is the path you showed me. I'm independent and strong because you carved me that way. I know you would fight the world for me. Thankyou anna.

For every person to be successful and pursue their dreams, there will be backbone and strength behind them. God knows when to send whom in each one's life. **Eric**, you have come into my life at just the right moment and have now become a backbone and pillar of strength. I have pursued what I wanted because of your support, and I would dedicate this to you. The anxiety, temper, tears and fears that I faced are tolerated by you. The unhealthier days were taken care of by you. Being a senior and a mentor in the profession and life, each and every milestone of mine is actually ours.

Derik, thank you for the days your alarms rang for me, and for the days you made me smile and laugh. The efforts you have made at every step have helped me move forward. I should thank you for all the coffees we shared and for the comfort you gave me through every hurdle. Thanks for travelling with me these many days.

Some bonds in the world start with magic. One such magical person in my life is you, ma'am. What have you not done to me? You have pampered, scolded, advised and guided me in all aspects of my life. More like a mentor, sister and well-wisher. Thank you for your care and support that you provided and still provide for my well-being. Thank you, **Dr Gowthami mam**, you are the reason for creating the best part of my life that I enjoyed the most.

As I said, God knows when to send whom. **Oviya**, you came like lightning with a splash and created warmth like the following rain in the heat that survived within me. Thank you for all your efforts and time you have spent on me and tolerated me in the past year.

Cibi sir, Thanks for the time that you spent hearing my trauma. You have been the greatest emotional support when I needed it the most. Thanks for guiding me through all the hardships and supporting me at every phase. You are truly a friendly mentor, and I always look forward to seeing you.

Monish sir, right from my CC guide and till now the guidance you gave me is truly cherishable. Thanks for clearing my doubts, making me understand things better and providing ears whenever I needed them and a bigger thanks for the help provided throughout my dissertation process sir.

Archana, thanks for being there for me and choosing me all the time, even when times are

faded and blurred.

Karunya, thank you for taking care of me during my most difficult and unhealthy days. Your kindness, concern, and support were a source of comfort when I needed it the most.

I would like to thank **all the SLPs** who have taken part in content validation and making the inter-rater reliability.

And my heartfelt Thanks to the Head of the schools, parents and teachers for welcoming me to conduct this study. And all the kutties actively participated in the study.

Special thanks to **Swathi mam and Prakruthi mam** for spending hours in helping through my dissertation doubts and clarifications.

Dinesh and Vidya, thank you for making me learn Kannada and being there for me during my hard times.

Thank you, **Diploma Tamil Pasanga**, for providing the support in all means whenever I needed it.

The moment of gratitude to **Dr. Yeshoda mam**, this is because when I missed my parents the most and when my health was at its worst, mam, your words and care for my health and mental well-being are beyond explanation.

Also, my heartfelt thanks to **Pradeep Kumar sir** for the clinical support provided during the tough clinical times.

Though it was for a shorter time, **Shanvi**, you have become like my little sister, listening to me and comforting me. Thanks to God for all the loving people of mine, including you.

And the loving batch, **Celestials and A-section** people. How can I miss this ending without mentioning them? A bigger and tear-filled thanks.

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List of Frequently Used Abbreviations

CS-Composite score

TNW-Total Number of Words

NDW-Number of Different words

MLU-Mean length of Utterance

SI-Subordination index

Abstract

Narrative discourse represents a unique window into children's development in linguistic, cognitive, and social aspects, as it requires the integration of language form, content, and use within a meaningful communicative context. Although narrative abilities have been widely studied across languages, developmental information on narrative discourse in Tamil-speaking children remains limited. The lack of language-specific data highlights the need to examine how narrative skills develop during the preschool and early school years and whether environmental factors such as socioeconomic status influence narrative performance.

The present study investigated narrative discourse development in 80 typically developing Tamil-speaking children between 4 and 8 years of age. Participants were grouped according to age (4–5, 5–6, 6–7, and 7–8 years) and socioeconomic status (low and middle SES). Narrative samples were elicited through a story-generation task with a picture prompt and analysed at both macrostructural and microstructural levels. Narrative macrostructure was evaluated using the Narrative Scoring Scheme (Heilmann, 2010), whereas microstructure was examined through measures of narrative productivity, lexical diversity, and syntactic complexity.

The findings demonstrated a clear developmental progression in narrative abilities across age groups. Older children produced narratives that were more coherent, structurally organised, lexically diverse, and syntactically complex than those of younger children. In contrast, socioeconomic status did not significantly influence either macrostructural or microstructural aspects of narrative production. These findings suggest that age-related linguistic and cognitive maturation played a greater role in narrative development than socioeconomic differences within the population studied.

The study provides developmental evidence on narrative discourse in Tamil-speaking children and contributes preliminary normative information that may support the assessment and interpretation of narrative abilities in clinical and educational settings. The findings further underscore the importance of narrative analysis as a tool for understanding higher-order language development during childhood.

Keywords: Narrative discourse development, Tamil-speaking children, Macrostructure, Microstructure, Socio-economic status

Chapter 1

Introduction

Communication is an essential part of human life that enables individuals to interact socially and fulfil their emotional, academic, and communicative needs. Humans are inherently social beings, and language serves as an important medium through which thoughts, emotions and experiences are shared. Infants are not born with mature linguistic abilities, and they acquire them gradually, especially through interaction with their environment. Language development progresses from single-word utterance to phrase combinations, complete sentences, and eventually connected discourse. As children mature, they learn not only to produce grammatically correct sentences but also to organise language meaningfully for effective communication (Owens, 2011).

As children develop connected language abilities, they begin to use language in extended communicative contexts referred to as discourse (Clark, 1994). One important form of connected discourse is narrative discourse. Narratives involve the organisation and communication of events in a coherent and meaningful manner. Unlike conversations, narratives are decontextualised monologues in which the speaker must provide sufficient contextual and sequential information for the listener to understand the events being described. Narrative production requires individuals to organise and communicate information by integrating language skills with cognitive and social abilities, thereby reflecting advanced language functioning. (Chapman, 1989; Owens, 2011).

Narrative abilities are closely associated with children's socialisation and literacy acquisition (Fujiki et al., 2008; Snow et al., 1998). Because narrative production integrates multiple linguistic, cognitive, and social processes, it serves as a source of

valuable information regarding children's cognitive-linguistic and socio-communicative development (McCabe & Rollins, 1994; Owens, 2011). Oral narrative skills have also been identified as strong predictors of later literacy and reading abilities (Griffin et al., 2004; Reese et al., 2010). Therefore, the study of narrative development is clinically important for the early identification of higher language difficulties. Also it aids in planning appropriate interventions in children.

Narrative skills start to emerge during the preschool years. They continue to develop through childhood (Applebee, 1978). The narrative development is closely associated with cognitive and linguistic maturation. Narrative production requires several cognitive-linguistic prerequisites, including temporal sequencing, causal reasoning, memory organisation, and the development of mental schemas for story organisation. As children grew older, their narratives become increasingly coherent, organised and linguistically complex.

The quality of a narrative depends not only on the linguistic forms used but also on how coherently story events are organised. Narratives are commonly analysed at two levels: macrostructure and microstructure. Macrostructure refers to the global organisation and overall content of narrative, whereas microstructure refers to the local linguistic features within the narrative, such as grammatical complexity and lexical diversity (Owens, 2011). The macrostructural organisation of narratives is often examined using the story grammar framework, which includes components such as setting, character development, conflict resolution, initiating events, attempts, and consequences. Narratives containing well-organised story grammar components are considered more coherent and structurally advanced (Strong, 1998). Several frameworks have been developed to analyse narratives, including the story grammar

approach proposed by Stein and Glenn (1979), high-point analysis by Peterson and McCabe (1983), and the Narrative scoring scheme developed by Heilmann et al. (2010).

1.1 Need for the study

Narrative skills develop across preschool and early school years. Studies show a quantifiable increase in narrative productivity measures from 3 years to 7 years (Venkatraman & Thiruvalluvan, 2021; Ravichandran et al., 2020), but detailed developmental profiles still remain unexplored. More longitudinal or stage-based data are required to tap the developmental trajectories. Narratives reflect complex language use involving syntactic and semantic organisation; thus, they go beyond conversational speech. Narratives are characterised by rule-based structures that incorporate linguistic elements such as embedded clauses and noun phrases, providing valuable insights into children's linguistic, cognitive, and social development (Ravichandran et al., 2020). Narrative tasks activate complex cognitive processes, engaging episodic memory, phonological loops, and visuospatial sketchpads, highlighting their role in integrated language-cognitive assessment (Baddeley, 2000; León, 2016). Stadler and Ward (2006) stated that narrative development plays a role in predicting literacy acquisition and academic performance. Similarly, Feagans and Short (1984) emphasised that narrative ability is a crucial dialectical capacity for school success.

There is a need to design assessment strategies that are developmentally, linguistically, and culturally appropriate (De Silva, 1998). Slobin's (1996, 2003a) 'thinking for speaking hypothesis' suggests that people think in a way speech is produced i.e., thinking while speaking may differ across people depending on the language that they are speaking. Thus, narrative discourse in all languages need not necessarily contain the same elements. Since storytelling style and structure differ with different languages and cultures (Heath, 1986; Johnson, 1995), which is also backed up

by Slobin's hypothesis, it is essential to develop language- and culture-specific narrative norms, assessment tools and intervention guidelines.

Existing studies on Tamil-speaking children are limited in scope. The prior research (Priyadharshini, 2017; Ravichandran et al., 2020) involved small sample sizes, varied elicitation tasks, and lacked standardisation, limiting the generalizability of findings. Therefore, normative data for Tamil narratives are insufficient, and a larger number of developmental studies are warranted so that the findings can be replicated, thus increasing and deepening our understanding of narrative language acquisition in Indian languages.

Establishing task-specific developmental norms will help streamline clinical evaluation protocols (Adani & Ceganec, 2019; Schneider & Dubée, 2005). Based upon the narrative performance of typically developing children, clinicians can differentiate and personalise therapy objectives so that the intervention targets are tailor-made for each individual client (Weddle et al., 2013).

1.2 Aim of the study

To investigate the development of narrative discourse in Tamil-speaking typically developing children.

1.3 Objectives of the study

To compare the performance of 4 to 8-year-old typically developing Tamil-speaking children on narrative macrostructural measures across age groups.

To compare the performance of 4 to 8-year-old typically developing Tamil-speaking children on narrative microstructural measures across age groups.

To compare the macro and microstructural measures between socioeconomic groups (lower vs middle SES) in 4 to 8-year-old typically developing Tamil-speaking children.

1.4 Research Hypotheses

H01: There is no significant difference in the performance of 4 to 8-year-old Tamil-speaking children on narrative macrostructural measures across the age groups.

H02: There is no significant difference in the performance of 4 to 8-year-old Tamil-speaking children on narrative microstructural measures across the age groups.

H03: There is no significant difference in the performance of the lower and middle socio-economic groups on macro and microstructural measures in 4 to 8-year-old typically developing Tamil-speaking children.

Chapter 2

Review of Literature

2.1 Language, Pragmatics and Discourse: Foundation of Narratives

Language is a rule-governed symbolic system through which individuals express ideas, share experiences, and participate in social interactions (Bloom & Lahey, 1978; Owens, 2020). In addition to serving communication purposes, language plays a central role in learning, cognition, and social participation (Owens, 2020). Language is defined by its structural components, but it is also explained by how effectively it is used in everyday communication. The ability to use language effectively across various social situations is the key to successful interaction and forms the basis for pragmatic competence (Bates, 1976; Adams, 2002).

Pragmatics is concerned with how language is used in achieving communicative goals in various social and other situational contexts (Adams, 2002). These includes ability in interpreting speakers' intentions, adapting language to the listener's needs, and participating in communicative exchanges accordingly (Adams, 2002; Cummings, 2014). The communication starts to extend beyond the individual utterances to larger units of connected language and this extended use of language is referred to as discourse. Ninio and Snow (1996) described discourse as language beyond the sentence level, involving connected stretches of spoken or written communication. Through discourse, individuals can organise information, express various ideas, and construct meaningful messages. This ability to produce discourse effectively, therefore, requires integrating linguistic knowledge with cognitive and social processes (Berman & Slobin, 1994).

2.2 Discourse as an advanced language skill

Discourse is one of the most advanced forms of language as it requires the integration of linguistic, cognitive, and social skills (Berman & Slobin, 1994; Westby, 2005). The discourse involves organising ideas across multiple utterances while maintaining coherence and contextual relevance, making it distinct from simple words and sentences. For a successful discourse, along with the production of grammatically accurate language, the ideas should also be logically connected and adjusted to the communication demands of the situation (Ninio & Snow, 1996; Westby, 2005).

Discourse takes several forms, such as conversation, narration, exposition, persuasion, and description. Each of them has their own form of organisational structure and communicative purpose. Thus, they create different demands on the speaker or listener. Discourse encompasses both comprehension and production. While receptive discourse abilities involve understanding connected language and drawing inferences from it, expressive discourse requires the generation and organisation of information into meaningful and coherent messages (Westby, 2005).

Discourse development in children provides information about growth across multiple domains. When children acquire larger vocabularies and more complex grammatical structures, they become capable of linking ideas, maintaining topics, and expressing relationships between events. At the same time, advances in memory, executive functioning, and social cognition contribute to their ability to participate effectively in extended communication (Berman & Slobin, 1994). Thus, discourse is considered a sensitive and strong indicator of overall language competence, including higher-order language functions. Traditional word- or sentence-level evaluations, which are usually carried out in clinical settings, may not provide sufficient information

compared to discourse assessment. Children who perform well on structured language tasks can still face difficulties in organising, interpreting, or communicating in extended discourse. Examining discourse, therefore, offers valuable insights into functional language use and has become an important component of language assessment in both research and clinical settings (Westby, 2005).

Among the different forms of discourse, narrative discourse has received particular attention in research and clinical practice over the past decade because it captures the integration of language form, content, and use within a meaningful communicative context. Narratives require speakers to organise events into a coherent sequence, establish temporal and causal relationships, describe characters' goals and motivations, and maintain coherence across an extended stretch of language (Steinn & Glenn, 1979). Compared to conversation, a narrative is a social monologue maintained by a narrator. The speakers are required to provide information relevant to the story while ensuring the listener receives sufficient details to understand the events being described. Due to the lack of feedback in narratives, which are usually provided in conversation, the speaker has a greater responsibility for organising and delivering information in a narrative discourse (Peterson & McCabe, 1983).

Therefore, the significance of narrative discourse extends far beyond the traditional language assessment pertaining to words and sentences. Narrative abilities are associated with literacy development, reading comprehension, academic achievement, and social communication skills (Dickinson & McCabe, 2001; Peterson et al., 2008). Because narrative production draws upon multiple linguistic and cognitive processes simultaneously, it provides a rich source of information about children's communicative competence and developmental progress (Justice et al., 2006). Consequently, narrative discourse has become a central focus of developmental and

clinical research and serves as a valuable framework for understanding children's higher-level listening abilities. An examination of narrative development is therefore essential to understanding discourse competence and forms the basis of the present review.

2.3 The Concept and significance of narrative discourse

Narrative discourse is the most common and functionally important form of discourse used in everyday communication. Through narratives, individuals share personal experiences, convey emotions, describe events, and construct meaning from their interactions with the world (Karmiloff & Karmiloff-Smith, 2002). As an early form of monologic discourse, narratives provide a means of reporting, analysing, and regulating experiences and activities (Ukrainetz, 2006). Beyond their communication function, narratives occupy a central place in human culture and social life, serving as a medium through which knowledge, traditions, and values are transmitted across generations.

Narrative skills involve the ability to produce a fictional or real account of events, organised in a meaningful temporal sequence (Venkataraman et al., 2021). The production of a coherent narrative requires the integration of multiple linguistic, cognitive and social abilities. Children must organise events logically, establish causal and temporal relationships, represent characters' intentions and emotions, and communicate information in a manner that can be understood by the listener (Aku-Koc & Aktan Erciyes, 2018). Consequently, narrative production is considered one of the most complex forms of discourse and serves as a sensitive indicator of higher-order language functioning.

Narratives are primarily monologues and are combined as cohesive units by linguistic markers and thematic unity. For various communicative purposes, they are

used by almost all cultures (Owens, 2011). Narrative genres include personal and fictional narratives. A real past experience recounted by the speaker is called a personal narrative, whereas recall of a previously heard/read story originally by the speaker, wherein the speaker was not a participant, is a fictional narrative (Goldstein, 2000; Heath, 1986). These narrative genres are used for various purposes, organized in different manners, and children's production of these genres differs in high and low cultural backgrounds (Heath, 1986).

Goldstein (2000) and Heath (1986) described four basic narrative genres: recasts/recounts, Event casts, accounts, and stories.

Recast/recount: Involves describing the past events and experiences in a chronological manner while maintaining a consistent. Example: When the speaker is trying to summaries information learned from the textbook.

Event cast: These are verbal descriptions of ongoing or planned activities and procedures. Example: Narrating about the field trip or explaining how to make a dish.

Account: Sharing a personal experience. Example: Talking about your vacation or field trip

Story: A fictional account of people involving human characters or non-human entities that display human-like characteristics, who must overcome some problem. These narratives typically revolve around a problem or conflict that must be resolved and often convey social or Moral importance in that particular culture.

Among the different types of discourse forms, narrative discourse has particular importance because of its close relationship to socialisation (Fujiki, Spackman, Brinton, & Illig, 2008; Goencue & Klein, 2001), classroom communication (Yawkey, Aronin, Street, & Hinojosa, 1974), and emergent literacy skills. (Snow, Burns, & Griffin, 1998). Well-developed narrative abilities contribute to children's success in reading

comprehension, listening comprehension, and both oral and written expression. Researchers have consistently highlighted the importance of narratives in child development.

Narrative abilities provide valuable insights into linguistic, cognitive, and social development and are strongly associated with later literacy achievement and academic success (Feagans & Short, 1984; Griffin et al., 2004; Stadler & Ward, 2006). Children's narrative competence has also been shown to predict reading comprehension, written language development, and broader educational outcomes (Dickinson & McCabe, 2001; Peterson et al., 2008). Because narrative tasks require children to independently organise and communicate information over extended stretches of discourse, they often reveal strengths and weaknesses that may not be apparent in sentence-level language assessments (Justice et al., 2006). Narrative assessment simultaneously captures linguistic, cognitive, pragmatic, and discourse-level skills within a single communicative context, making it a sensitive tool for identifying developmental language difficulties (Botting, 2002; Westby, 2005). Studies have demonstrated that children with language impairment produce shorter narratives, poorly organised and linguistically simpler than their typically developing peers (Boudreau & Hedberg, 1999; Reilly et al., 2004). Consequently, narrative analysis becomes an important clinical and research tool for understanding children's language abilities and identifying areas requiring intervention.

Narrative abilities begin to emerge during the preschool years. They continue to develop throughout childhood and adolescence (Berman & Slobin, 1994; Lindgren, 2021). Early narratives are often descriptive and consist primarily of isolated actions or events. As children mature, their narratives become increasingly organised, coherent and linguistically sophisticated, reflecting advances in vocabulary, syntax, memory,

executive functioning and social cognition (Berman & Slobin, 1994; Peterson & McCabe, 1983). By approximately three to four years of age, children can produce simple fictional narratives, although adult support is often required (Capone, Singleton, & Shulman, 2014). With increasing age and language experience, children gradually progress from simple descriptive sequences to more complex narratives containing causal relationships, character motivations, and goal-directed episodes (Stein & PolICASTRO, 1984; Westby, 2012).

Narratives are also recognised as culturally and linguistically sensitive forms of discourse. Storytelling is a universal human activity; the traditions and cultural practices are carried hereditarily through these native storytelling practices. Thus, the organisation, style, and linguistic features of narratives vary across languages and cultural communities (Heath, 1986; McCabe, 1997). Such variations highlight the importance of developing language-specific normative data for narrative assessment and the need to examine narrative development across linguistic and cultural contexts (Justice et al., 2006; Rollins et al., 2000).

Narratives, possessing these developmental, educational, and clinical significances, have become a widely used tool for evaluating children's discourse abilities. Narrative analysis provides comprehensive information about the existing linguistic knowledge and how children integrate this with cognitive and communicative skills to construct meaningful discourse. To understand this complexity, narratives are commonly analysed at two complementary levels: macrostructure and microstructure (Justice et al., 2006; Gagarina et al., 2012). They provide information about the overall organisation of a narrative and the linguistic mechanisms used to convey it.

2.4 Structural components of narrative discourse: Macrostructure and Microstructure.

Narrative discourse is commonly analysed at two complementary levels: macrostructure and microstructure. Together, these analyses provide comprehensive information about children's narrative capabilities in the overall organisation of a story and the linguistic resources used to express it (Justice et al., 2006; Gagarina et al., 2012). While macrostructure reflects the global organisation and coherence of a narrative, microstructure focuses on the linguistic components that support narrative construction (Justice et al., 2006; Venkataraman et al., 2021). It captures how story elements are organised into a meaningful sequence and reflects the narrator's overall ability in constructing a coherent presentation of events. Most macrostructural analyses are based on story grammar frameworks proposed by researchers, such as Stein and Glenn (1979), which describe narratives containing a setting and few or more episodes. The characters, location, and contextual information are provided by the setting, whereas episodes include an initiating event, an internal response or goal, the attempts, their outcome, and a reaction. The way these elements are included and organised contributes to the overall quality and complexity of the narrative (Steinn & Glenn, 1979; Hickmann, 2003). An alternative framework for analysing narrative macrostructure is the high point analysis, which focuses on components such as orientation, complicating actions, and evaluation. High point analysis is commonly applied to personal narratives and the story grammar framework is more frequently used for fictional narratives. This story grammar model has formed the basis for several contemporary narrative assessment tools (Peterson & McCabe, 1983; Aksu-Koc & Aktan-Erciyas, 2018).

Developmental studies indicate that children's macrostructural abilities undergo substantial changes throughout childhood. Early narratives are usually simple descriptions or action sequences with limited causal organisation. As children grow and

mature, they increasingly incorporate character goals, causal relationships, and complete episodic structures into their narratives, resulting in more coherent and sophisticated story organisation (Berman & Slobin, 1994; Peterson & McCabe, 1983; Westby, 2012). Because macrostructure deals with overall narrative organisation, it is often considered closely related to cognitive processes such as planning, inference, and perspective-taking (Berman, 2001; Paradis et al., 2011).

In contrast, microstructure is related to the linguistic features used to construct a narrative (Justice et al., 2006). It encompasses aspects of language form and content, including productivity, vocabulary diversity, grammatical complexity, and cohesive elements. These provides information about how effectively speakers use linguistic resources, ideas, and connect events within a narrative. Several measures have been used to examine narrative microstructure. Productivity is commonly measured by Total Number of words, Total number of communication units, and the Total Number of T-units (Hunt, 1966; Loban, 1976). Lexical diversity reflects the range of vocabulary used within a narrative and is measured using the number of different words and the Type-Token ratio (Malvern et al., 2004). Syntactic complexity refers to the sophistication of the grammatical structures used by the narrator and evaluated through measures such as Mean length of utterance, Mean length of C-unit, clausal density, and Subordination index (Guiterrez-Clellen&Hofsteter,1994; Heilmann et al.,2010; Koustar et al.,2022).In addition to productivity, lexical diversity and syntactic complexity, cohesive elements constitute an important aspect of narrative microstructure. Cohesion refers to the linguistic mechanism that links ideas and events within a narrative through the use of referent markers, conjunctions, and temporal connectives. Effective use of cohesive elements contributes greatly to narrative clarity and helps listeners follow the progression of story events (Halliday & Hasan, 1976; Justice et al., 2006).

Even though the macrostructure and microstructure represent different aspects of narrative performance, they are closely interconnected. Research suggests that advances in vocabulary, grammatical development, and syntactic complexity support children's ability to construct coherent story structure (Berman & Slobin, 1994; Bishop & Donlan, 2005). At the same time, successful narrative production requires integrating both levels, as children must organise story events coherently, employing appropriate linguistic forms to convey them effectively. For this reason, contemporary narrative assessment typically includes analyses of both macrostructure and microstructure to understand children's discourse abilities. This allows researchers and clinicians to identify developmental strengths and weaknesses across multiple levels of narrative production (Justice et al., 2006).

2.5 Development of narrative discourse

The earliest forms of narrative production, often referred to as proto-narratives, emerge between 2 to 3 years of age. During this period, children begin talking about past events and familiar experiences, producing simple event descriptions that contain substantial evaluative context and they have five times much evaluative information than children's regular conversation. These proto-narratives actually double in number between 2 to 2½ years, and children start sequencing events with minimal help from adults. These early narratives often require support from caregivers, but gradually become more independent as children gain experience in organising events and communicating them to others. Children between 2 to 3 years of age start to produce self-generated and fictional narratives, marking an important transition from recounting experiences to constructing stories (Peterson & McCabe, 1983).

Even before the first words appear, children have a foundational understanding of familiar events and of actions positioned at the beginning, middle, and end of sequences. The overall organization in narratives are called as the narrative level.

Children organize their early narratives using simple structural patterns known as centering and chaining. While young children focus on central character or event, older preschoolers gradually start linking events into meaningful sequences. Most of the 2-year-old stories are organised by centering in which similar entities based on their feature are linked together. They are centred on specific highlights and have a vague plot. On the other hand, chaining consists of a sequence of events with similar attributes that lead directly from one to another. Children mostly tell the events which they find disruptive or extraordinary. A preschooler has poor expertise in introducing, exploring with, or orienting the audience, considering the listener minimally. Their stories lack identifiable beginnings, middles, and ends. The children use both centring and chaining from age 3, with the latter increasing further up to age 5. The participants in the story, the place and time of the story events are not well explained; they are minimal or non-existent at early stages and improve with maturity. It has been found that identifying the story participants is not achieved even after around 3 1/2 years and it is attributed to the fact that most personal narratives are provided by the child to the familiar individuals. Thus, children need not identify them in their personal narratives. (Peterson, 1990).

Similarly, children lack the ability to provide a time frame and location. Initially, location is commonly identified, particularly in the home; over time, they can identify out-of-home locations. As previously discussed, the earliest narratives produced by two-year-old children are often organised as centring heaps, which consist of a collection of statements related to a common topic or stimulus. These utterances are typically added after one another without a clearly defined organisational structure. Even though these

sentences share similar grammatical forms, the storyline, temporal sequence, causal relation and coherence are still lacking. Because of the lack of coherence, the overall meaning may change. Moreover, children may use them to narrate about a particular scene or situation.

As preschool children grow older, they begin to produce connected, organised narratives known as centring sequences. They develop structure and plot organisation around the ages of 3 and 7 years. They begin to include logical and temporal sequences. Although these early narratives demonstrate sequencing, the defining plot and causal relationships are underdeveloped. Thus, they are based on event scripts providing a framework for organising experiences and familiar activities.

These scripts usually consist of predictable sequences associated with routine activities and play an important role in both the interpretation and production of narratives. By approximately 3 years of age, children can describe event sequences within familiar routines, such as attending a birthday party.

Event chains are the core of every narrative. These events involve action, physical states, or mental states, including emotions, intentions, thoughts, and motivations. Children recognise these causal connections between events as they develop.

Knowledge of event structure emerges around age 4 and continues to expand throughout childhood. Unfocused and focused temporal chains are the two major event structures found in narrative discourse. Unfocused temporal chains contain events following one another sequentially, whereas focused temporal or causal chains are organised around a central character whose experiences connect the events. Narratives that clearly demonstrate causal relationships, where one event leads to another, become more common after five years of age.

Age-related improvements in both narrative macrostructure and microstructure have been consistently supported by research findings. Studies have shown that children use a greater number of story grammar components and produce more coherent narrative structure with increasing age (Berman & Slobin, 1994; Trabasso & Rodkin, 1994). Longitudinal studies also supported that narrative growth continues throughout the early school years. Gardner-Neblett (2024) reported that African-American children across an academic year showed a significant increase in the use of story grammar elements, showing that narrative development reflects both maturation and educational experiences. Similarly, Bitetti & Scheffner-Hammer (2021) observed Spanish-English bilingual children over a four-year period and reported continuous growth in narrative organisation, with distinctive developmental trajectories for different narrative features.

Age-related improvements are also evident in narrative microstructure. Productivity, lexical diversity, syntactic complexity, and cohesion increase throughout childhood. (Justice et al., 2006; Makinen et al., 2014). Older children produce longer narratives that contain a greater variety of vocabulary and more complex grammatical structures. Studies have also demonstrated developmental increases in microstructure measures such as the total number of words, the number of different words, the mean length of utterance, clausal density, and the subordination index, reflecting growth in linguistic proficiency (Heilmann et al., 2010; Makinen et al., 2014; Kosutar et al., 2022).

Cross-linguistic investigations also support the developmental nature of narrative skills. Research involving Arabic-speaking children has shown that younger children often lack coherent storytelling, whereas around 5 years of age, they begin producing narratives with appropriate, adult-like structures, although refinements in grammar and emotional expression continue beyond this age. Similar developmental trends have been reported across the linguistic and cultural contexts, including Russian-

German bilinguals, Swedish-speaking children, and Croatian-speaking children (Gagarina, 2016; Lindgren, 2019; Kosutar, 2022).

Overall narrative development is a continuous, dynamic process that begins with simple event descriptions during toddlerhood and gradually progresses to advanced, coherent discourse. The ability to organise events into meaningful structures, expressing causal and temporal relationships, representing characters' internal states, and employing advanced linguistic forms gradually increases throughout this development. And, these developmental changes are reflected in both macrostructural and microstructural aspects of narrative production, making narrative assessment a valuable tool for understanding language development across childhood.

2.6 Socioeconomic status and narrative discourse

Socioeconomic status (SES) is a multifaceted construct commonly characterised by parental education, occupation, and family income. It has been recognised as an important environmental factor influencing children's language development, as it tends to shape the quality and quantity of linguistic input, access to literacy experiences, and opportunities for cognitive stimulation within the home environment (Hackman et al., 2010; Hoff, 2013).

An association between SES and various aspects of language development have been consistently reported by previous studies. Children from higher socioeconomic backgrounds generally exhibit stronger vocabulary skills, greater lexical diversity, and more advanced language processing abilities than children from economically disadvantaged backgrounds (Hart & Risley, 1995; Fernald et al., 2013). The longitudinal study by Hart and Risley (1995) reported noticeable differences in both the quality and quantity of linguistic input provided to children across socioeconomic

groups. They observed that children from higher-SES families were exposed to significantly more language and demonstrated larger productive vocabularies than children from lower-SES backgrounds. Fernald et al (2013) reported similar differences in vocabulary growth and language processing efficiency emerging as early as the second year of life, suggesting that SES-related differences may influence later language and academic outcomes.

These findings suggest that SES has also been associated with syntactic development. Huttenlocher et al. (2010) reported that both family income and maternal education, as well as caregiver language input, significantly predicted children's lexical diversity and syntactic growth during early childhood, indicating that SES and language exposure influence language outcomes. Similarly, Wilder and Redmond (2021) reported that socioeconomic differences influence children's use of complex syntactic structures and overall language proficiency.

The influence of SES extends beyond word- and sentence-level language abilities to discourse and narrative skills. Narrative production is a complex communicative activity that requires integrating vocabulary, grammar, discourse, organisation, memory, and social-cognitive skills. Thus, differences in language experiences associated with SES may be reflected in children's narrative performance (Hoff, 2013). Narrative assessment provides a valuable means of examining how environmental factors influence functional language use because it captures both linguistic and cognitive aspects of communication.

Despite the well-established relationship between SES and language development, findings regarding the influence of SES on narrative abilities have been inconsistent. Some studies have suggested that socioeconomic factors contribute to differences in narrative performance by affecting vocabulary, syntactic complexity,

literacy experiences, and language exposure (Hoff, 2013; Huttenlocher et al., 2010). However, there are existing studies reporting limited or no direct influence of SES on narrative organisation. Kulkofsky et al. (2008) and Resee et al.(2010) found that narrative quality was not significantly associated with socioeconomic status when maternal education was considered. These findings suggest that narrative abilities may be influenced by many factors beyond socioeconomic status alone.

Research examining the relationship between SES and narrative microstructure has also produced mixed findings. Alt et al. (2015) investigated narrative production among Spanish-speaking children and reported that SES did not significantly predict structural measures such as Number of Different Words (NDW), Mean Length of Utterance (MLU), and Subordination Index (SI). It has also been found that SES predicted narrative performance in English narratives but not in Spanish narratives among Spanish-English bilingual children. These findings suggest that the influence of SES on narrative skills may vary across linguistic contexts and language dominance. Studies examining narrative microstructure have reported comparable incidents. While socioeconomic factors have been associated with broader language and literacy outcomes, evidence suggests that microstructural narrative organisation may be relatively resilient to SES-related differences. Narrative macrostructure primarily reflects children's understanding of story organisation, causal relationships, and goal-directed event structure, which may be supported by everyday storytelling experiences across socioeconomic backgrounds (Kulkofsky et al.,2008; Resee et al.,2010). Overall, existing evidence indicates that SES may influence several aspects of language development, particularly vocabulary growth, lexical diversity and syntactic complexity. Relatively little is known about the influence of SES on narrative abilities

in Indian languages such as Tamil. This highlights the need for further investigation of narrative development across socio-economic groups in Tamil-speaking children.

2.7 Assessment of narratives

The multidimensional nature of narrative development has led to a range of assessment approaches designed to capture different aspects of children's storytelling abilities. Because narrative production involves integrating linguistic knowledge, discourse organisation, memory, and inference, no single measure will be sufficient to comprehensively evaluate narrative competence (Justice et al., 2006; Ukrainetz, 2006). Thus, narrative assessment has evolved as an important method for examining how children organise and communicate information within connected discourse. Several authors and researchers have used various narrative elicitation procedures and scoring frameworks to evaluate narrative performance. Some of these approaches focus on overall story organisation and coherence, while others examine linguistic features that support narrative construction. Accordingly, narrative assessment typically incorporates analysis of both macrostructural and microstructural dimensions (Gagarina et al., 2012; Heilmann et al., 2010).

2.7.1 Narrative elicitation methods and task specificity

Narrative performance is influenced not only by a child's linguistic and cognitive abilities but also by the method used to elicit the narratives. Different narrative elicitation procedures place varying demands on language processing, memory, organisation, and discourse planning, which may affect narrative performance (Duinmeijer et al., 2012; O-Neil et al., 2004). Therefore, the choice of the elicitation task is an important consideration in narrative assessment. Narratives are commonly elicited through personal narratives, story retelling (SR), and story generation (SG). Although all three approaches provide valuable information about narrative competence, fictional

narratives used in SR and SG are often preferred in research and clinical contexts because they offer greater control over content and facilitate more consistent scoring across participants (Hughes, 2001; Ukrainetz, 2006). Story retelling involves listening to a story and reproducing it in one's own words; whereas story generation requires the child to create the story independently, usually from a picture sequence or verbal prompts (Gazella & Stockman, 2003). Toner (2019) found that story generation elicited greater morphosyntactic complexity than story retelling. These findings suggest that different elicitation procedures may emphasise different aspects of narrative competence. Even Longitudinal studies also support task-related differences in narrative production. From a cognitive perspective, story retelling relies on an existing narrative model and is largely supported by comprehension, memory, and reconstruction processes. Story generation task, in contrast to story retelling, requires children to independently formulate a story schema, organise events temporally, establish causal links, and select appropriate linguistic forms, thereby placing greater demands on executive functioning and discourse planning (Hansen, 1978; Anderson, 2015). The influence of elicitation procedures has important implications for narrative assessment.

2.7.2 Assessment of narrative macrostructure

Several tools have been developed to analyse the macrostructure of narratives, including the Narrative Assessment Protocol (NAP; Justice et al., 2010), The Edmonton Narrative Norms Instrument (ENNI; Scheniedir et al., 2005), The Index of Narrative Macrostructure (INMIS; Justice et al., 2006), Multilingual Assessment Instrument of Narratives (MAIN; Gagarina et al., 2012), and the Narrative Scoring Scheme (Heilmann et al., 2010).

Among the available narrative assessment measures, the Narrative Scoring Scheme (NSS) has gained considerable attention due to its ability to evaluate multiple dimensions of narrative macrostructure within a single framework. Developed by Heilmann et al. (2010), the NSS provides a comprehensive assessment of narrative quality by examining key story elements and discourse organisation. This tool assesses how individuals organise story events, explain causal relationships, introduce characters, present problems, resolve conflicts, maintain cohesion, and draw conclusions. NSS provides clear information about discourse-level language competence. Unlike other tools that assess narrative macrostructure, NSS incorporates both structural and discourse-level features of storytelling. Strong reliability, validity and sensitivity to developmental differences for the NSS were reported by Heilmann et al. (2020).

2.7.3 Assessment of narrative microstructure

In addition to assessing narrative macrostructure, narrative microstructure assessment provides valuable information about the linguistic resources children employ during storytelling. Measures of productivity, lexical diversity, and syntactic complexity are commonly used to characterise microstructural performance (Justice et al., 2006; Heilmann et al., 2010).

The total number of words (TNW) is widely used as a measure of productivity, reflecting the amount of language produced during narrative production. Studies have shown an age-related increase in TNW, suggesting that older children tend to provide longer and more elaborate narratives than younger children (Justice et al., 2006; Makinen et al., 2014). Lexical diversity is commonly assessed using The number of different words (NDW), which reflects the range of vocabulary used within a narrative sample. A larger NDW indicates greater lexical diversity and richer vocabulary

repertoire. Studies reported an increase in NDW across childhood, highlighting the relationship between vocabulary development and narrative competence (Heilmann et al., 2010; Justice et al., 2006; Watkins, Kelly, Harbers, & Hollis, 1995). Mean length of Utterance(MLU) per T unit and Subordination index(SI) are measures of syntactic complexity. They provide information on a child's ability to organise words and clauses into increasingly complex grammatical constructions. They capture the child's capacity to produce elaborate utterances and to establish relationships between ideas within connected discourses (Justice et al., 2006). In a narrative context, MLU provides insight into the child's ability to formulate longer, more complex sentences, making it a useful measure for evaluating expressive language skills and monitoring developmental progress (Gilliam & Gilliam, 2016). The subordination index, the other measure of syntactic complexity, provides information on children's ability to use subordination clauses effectively to express clausal, temporal, conditional, and explanatory relationships between events. Thus, these subordination clauses play a crucial role in narrative cohesion and coherence.

2.8 Narratives in the clinical population

It is stated that language ability, as opposed to diagnostic status, is a more important determinant of narrative competence. Deficits in the global structure of narratives were found in children with autism (Frith, 1989); also, children with autism comment on the objects visible in the picture more than on the sequencing of events coherently (Loveland, 1983). There is a significant relation between theory of mind performance and a number of narrative measures such as length, information, complexity, and spontaneous use of mental state terms (Sullivan, 1994). In contrast to children with autism, children with Specific Language Impairment (SLI) are affected by the local structure of narratives, producing shorter, less cohesive stories that are

syntactically simple and contain frequent errors in syntax, semantics, and morphology (Bishop, 2003). Children with Pragmatic language impairment (PLI) demonstrated differences in narrative length and structural organisation comparable to those of typically developing children. These suggest that pragmatic competence and other linguistic abilities contribute independently to narrative production, and narrative deficits tend to be more pronounced when both domains are affected, as observed in children with autism (Botting, 2002). Westerveld and Gillon (2008) compared narrative abilities in children with reading difficulties and age-matched typically developing readers using story retelling, story generation, and personal narrative tasks. Their results indicate that the type of narrative elicitation task influences oral language performance and highlight the usefulness of narrative assessment in identifying language and literacy-related difficulties. As narrative production integrates language, cognition, social understanding, and literacy-related skills, narrative assessment provides valuable information about functional communication abilities and has become an important tool in both research and clinical practice (Botting, 2002; Westerveld & Gillon, 2008).

Chapter 3

Method

3.1 Participants

The sample for the current study consisted of 80 typically developing Tamil-speaking children aged 4 to 8 years, divided into four age groups with 1-year age intervals (i.e., 4 to 5, 5 to 6, 6 to 7, and 7 to 8 years). The age range of 4 to 8 years is chosen based on McCabe's (1997) finding that true narrative structures normally emerge around 6 years of age. Participants for the study were recruited from preschools and schools in urban and suburban areas of the Vellore district of Tamil Nadu, using purposive sampling.

Based on the results of the pilot study, sample size estimation was carried out. The required sample size for this study was estimated using *G*Power 3.1*. A G-power analysis was conducted using one-way ANOVA for each of the specified parameters, and effect sizes were generated. Based on the expected effect size range of 0.27 to 0.9, the required sample size was calculated as $N = 65$. Accordingly, the target sample size for the study was set at $N = 80$ (20 per age range) to ensure sufficient statistical power to detect effects within the anticipated range.

Research design: This study employed a cross-sectional, comparative and quantitative research design.

Sampling: Purposive and convenience sampling.

3.2 Inclusion criteria

The criteria for participant selection included the following:

- Children between 4 and 8 years of age who are native speakers of Tamil.
- Children belonging to the lower and middle SES assessed using the Modified Kuppaswamy Socioeconomic scale (2023).

- Children who are identified as typically developing without any speech, language, cognitive, sensory, or neurological issues based on the WHO Ten Questions disability screening checklist (1992).

3.3 Exclusion criteria: Children with reported speech-language development delays or academic difficulties were excluded.

3.3 Stimulus preparation

Stories depicted in the form of pictures were sourced from storyweaver.org and five stories in Tamil specific to the age range considered for the study were chosen. The selected stories with only the pictures retained and the text removed were given to five Speech Language Pathologists (SLPs) for content validation. These SLPs had Tamil as their native language with a minimum of five years of experience working in the area of Child Language Disorders. Based on the suggestions provided by the SLPs, the stimulus was chosen and adapted for the study. The story chosen for the study had the title 'En Theru' (See Appendix B). This story was chosen because the majority of the raters rated it as suitable for age range of the participants included in the present study. The story with coloured pictures was printed on standard-sized cards and was used for data collection.

3.4 Data collection procedure

Another story (apart from the actual stimulus used for the present study) was also developed as picture cards, which received the second-highest rating during content validation. The name of this story was 'Nilavum thoppiyum.' And this was used as a practice stimulus for familiarising children with the task. Children were asked to look at the pictures and generate/narrate the story presented in the pictures.

After the practice item was presented and the participants were familiarised with the task, children were shown the actual set of developed picture cards chosen as the

stimuli for the study (the story of “En Theru”) in sequence and asked to narrate the story based on the images. The stories narrated by the children were audio-recorded using a Samsung S23 FE (SM-S711B/DS), which was kept unobtrusively to capture the children’s responses without causing distraction. A maximum of five neutral prompts (e.g., “then what happened?”, “anything else?”, “after that?”) were used when the child paused or hesitated.

Data was collected separately for each participant. Prior to the assessments, informed consent was obtained from parents or guardians and school authorities. All procedures complied with ethical guidelines provided by the AIISH Ethical Committee for bio-behavioural sciences involving human subjects (Basavaraj& Venketasen,2009). Ethical clearance was obtained from AIISH Institutional Ethical Committee with the ID SH/IRB/M.5/SLP.12/2025-26.

The narrative elicitation sessions were conducted in a quiet, well-lit room within the child’s school setting, free from distractions. Each child was seated comfortably at a small table across the examiner. Familiar surroundings were chosen to minimise anxiety and ensure optimal participation. Only the child and the examiner were present during the session to maintain focus and reduce distractions.

All materials required for the tasks were prepared in advance and kept readily accessible. A short rapport-building session preceded the tasks to help the child feel at ease and engage naturally in the storytelling activity. Each child's recorded narrative sample was transcribed verbatim for analysis.

3.5 Data analysis procedure

Narrative samples collected from each participant during the story generation task was transcribed verbatim. The transcribed samples were subjected to macrostructural and microstructural analyses. For the macrostructural analysis, The

samples were analysed using Heilmann's Narrative Scoring Scheme (2010) (see Appendix A). Each narrative was rated according to the highest level of organisation achieved. The parameters evaluated under macrostructural analysis included Introduction (setting, characters), Character development, Mental states, referencing, cohesion and conclusion. Based upon the child's performance, the responses were rated using a Likert scale as proficient with a score of 5, emerging with a score of 3 and minimal with a score of 1. A composite score for the macrostructure components was also calculated. Composite macrostructure score is the total score derived from the sum of the seven macrostructure components—Introduction, Character Development, Mental States, Referencing, Conflict/Resolution, Cohesion, and Conclusion .

For microstructural analyses, the narratives were evaluated for Total number of words (TNW), Total number of different words (NDW), Mean length of utterance (MLU) and the Subordination index (SI). MLU was calculated using the formula, $MLU = \text{Total number of morphemes} / \text{Total number of T-units}$. Subordination Index was calculated using the formula, $\text{Subordination Index} = \text{Total number of subordinate clauses} / \text{Total number of T units}$.

Analyses of microstructural measures were carried out using the Systematic Analysis of Language Transcripts (SALT, Miller & Iglesias, 2012) -SALT8 software. The data was analysed using the Narrative Scoring scheme (Heilmann, 2010) and SALT software, and the results were tabulated. Statistical analysis was carried out using appropriate methods in IBM SPSS Statistics (version 26).

The performance of the participants was compared

For macrostructural parameters across age groups.

For microstructural parameters across age groups.

For macrostructural and microstructural parameters between socioeconomic groups (lower vs middle SES).

Inter-rater reliability was established by obtaining independent ratings from three Tamil-speaking Speech-Language pathologists on 10% of the total narrative samples. The obtained ratings were subjected to appropriate statistical analysis to determine the level of agreement among raters.

Chapter 4

Results

The present study aimed to investigate the development of narrative discourse in typically developing Tamil-speaking children across different age groups and socioeconomic backgrounds. Eighty typically developing Tamil-speaking children, aged 4 to 8 years, participated in the study. They were classified into low and middle-socioeconomic status groups. The narrative macro- and microstructures were compared across age and socioeconomic status groups.

Descriptive statistics, including Mean, Median, Standard deviation, and Interquartile Range for the narrative macrostructure and microstructural measures across age groups (4-5 years, 5-6 years, 6-7 years, 7-8 years) and socioeconomic status (Low and middle) groups, were computed.

Since the number of participants across socioeconomic status groups was unequal and smaller group size in the middle socioeconomic status group compared to lower socioeconomic status group, criteria for parametric analysis were not met, thus non-parametric tests were used for statistical analysis.

Shapiro-Wilk's test was administered to check for normality, across age groups and the results revealed that the macrostructural measures did not follow normal distribution across age groups ($p < .05$). The microstructural measures Total Number of Words (TNW) and Number of Different words (NDW) also showed non-normal distribution ($p < .05$). However Mean length of utterance (MLU) and subordination index (SI) followed normal distribution ($p > .05$).

The results of the study are described under the following sections:

4.1 Comparison of macrostructure components across age groups.

4.2 Comparison of microstructure measures (Total Number of words, Number of different words, Mean length of utterance, Subordination index) across age groups.

4.3 Comparison of macrostructure and microstructure components across Socioeconomic status groups (Low and middle).

4.1 Comparison of macrostructure components across age groups.

The comparison of individual narrative macrostructure components and the comparison of narrative macrostructure composite score across age are discussed in the following sections.

4.1.1 Age-wise Comparison of the Introduction Component of Narrative Macrostructure

Descriptive statistics, including mean, median, standard deviation and Interquartile range of the Introduction scores across age groups, were computed. Since the introduction score across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in Introduction score ($H=27.247, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher Introduction score (Median=3.00, IQR=1) than the 4-5-year group (Median=1.00, IQR=2), the difference was not statistically significant. The 6-7 years group exhibited significantly higher Introduction scores (Median=3.00, IQR=2) than the 4-5 years age group (Median=1.00, IQR=2). Similarly the 7-8 years group showed statistically significantly higher Introduction scores (Median=4.00, IQR=2) than the 4-5 years group (Median=1.00, IQR=2).

The 6-7 years age group demonstrated higher Introduction scores (Median=3.00,IQR=2) than the 5-6 years age group(Median=3.00,IQR=1);however the difference was not statistically significant. The 7-8-year age group obtained significantly higher Introduction scores (Median=4.00,IQR=2) compared to the 5-6-year age group(Median=3,IQR=1), and the difference was statistically significant. Although the 7-8years group demonstrated higher Introduction scores (Median=4.00,IQR=2) than the 6-7years group (Median=3.00,IQR=2) the difference was not statistically significant.

Thus, the findings suggest that Introduction scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). Thus, these results suggest a gradual developmental progression in the ability to introduce narrative contexts, becoming evident around 6 years of age.

4.1.2 Comparison of Character Development Scores Across Age Groups

Descriptive statistics, including the mean, median, standard deviation, and Interquartile range of the Character development scores across age groups, were computed. Since the character development scores across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in character development score ($H=37.906$, $p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher character development score (Median=2.00, IQR=2) than the 4-5-year group

(Median=1.00, IQR=1), the difference was not statistically significant. The 6-7years group exhibited significantly higher character development scores (Median=4.00,IQR=2) than the 4-5 years age group(Median=1.00 ,IQR=1).Similarly the 7-8years group showed significantly higher character development scores (Median=4.00, IQR=2) than the 4-5 years group(Median=1.00, IQR=1) and the difference is statistically significant.

The 6-7 years age group demonstrated higher character development scores (Median=4.00, IQR=2) than the 5-6 years age group(Median=2.00, IQR=2);however, the difference was not statistically significant. The 7-8-year age group obtained significantly higher Introduction scores (Median=4.00, IQR=2) than the 5-6-year age group (Median=2, IQR=2), and the difference was statistically significant. Although the 7-8years group demonstrated higher character development scores (Median=4.00, IQR=2) than the 6-7years group (Median=4.00, IQR=2) the difference was not statistically significant.

Thus, the findings suggest that character development scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). Thus, these results suggest a developmental progression in character development, becoming evident in older age groups.

4.1.3 Comparison of Mental States Scores Across Age Groups

Descriptive statistics, including mean, median, standard deviation and Interquartile range of mental state scores across age groups, were computed. Since the mental state score across age groups showed a non-normal distribution, the Kruskal-

Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in mental state scores ($H=38.215, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated higher mental state scores (Median=2.00, IQR=1) than the 4-5-year group (Median=1.00, IQR=2), the difference was not statistically significant. The 6-7years group exhibited significantly higher mental state scores (Median=3.00,IQR=2) than the 4-5 years age group(Median=1.00 ,IQR=2).Similarly the 7-8years group showed significantly higher mental state scores (Median=4.00,IQR=1) than the 4-5 years group(Median=1.00,IQR=2) and the difference is statistically significant.

The 6-7 years age group demonstrated higher mental state scores (Median=3.00,IQR=2) than the 5-6 years age group(Median=2.00,IQR=1);however the difference was not statistically significant. The 7-8-year age group obtained significantly higher mental state scores (Median=4.00,IQR=1) compared to the 5-6-year age group(Median=2,IQR=1), and the difference was statistically significant. Although the 7-8years group demonstrated higher mental state scores (Median=4.00,IQR=1) than the 6-7years group (Median=3.00,IQR=2) the difference was not statistically significant.

Thus, the findings suggest that mental state scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years).

Overall, the results suggest a developmental progression in children's ability to incorporate characters' thoughts, feelings, intentions, and internal states within narratives, with notable improvements becoming evident in the older age groups.

4.1.4 Comparison of Referencing Scores Across Age Groups

Descriptive statistics, including mean, median, standard deviation and Interquartile range of the referencing scores across age groups, were computed. Since the introduction score across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in referencing scores ($H=37.563, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher referencing scores (Median=2.00, IQR=1) than the 4-5-year group (Median=1.00, IQR=1), the difference was not statistically significant. The 6-7 years group exhibited significantly higher referencing scores (Median=3.00, IQR=2) than the 4-5 years age group (Median=1.00, IQR=1). Similarly, the 7-8 years group showed significantly higher referencing scores (Median=4.00, IQR=2) than the 4-5 years group (Median=1.00, IQR=1), and the difference is statistically significant.

The 6-7 years age group demonstrated higher referencing scores (Median=3.00, IQR=2) than the 5-6 years age group (Median=2.00, IQR=1); however the difference was not statistically significant. The 7-8-year age group obtained significantly higher referencing scores (Median=4.00, IQR=2) than the 5-6-year age group (Median=2, IQR=1), and the difference was statistically significant. Although the 7-8 years group demonstrated higher referencing scores (Median=4.00, IQR=2) than the 6-7 years group (Median=3.00, IQR=2) the difference was not statistically significant.

Thus, the findings suggest that referencing scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). In conclusion, the findings indicate a significant age-related improvement in Referencing scores across the four age groups. Children in the older age groups, particularly those aged 6–7 years and 7–8 years, demonstrated significantly better performance than children aged 4–5 years. Furthermore, the 7–8 years group performed significantly better than the 5–6 years group. However, no significant differences were observed between adjacent age groups (4–5 vs. 5–6 years, 5–6 vs. 6–7 years, and 6–7 vs. 7–8 years). Overall, the results suggest a developmental progression in children's ability to use appropriate referential expressions and maintain clarity in identifying characters and entities within narratives, with notable improvements becoming evident in the older age groups.

4.1.5 Comparison of Conflict Resolution Scores Across Age Groups

Descriptive statistics, including mean, median, standard deviation and Interquartile range of the conflict resolution scores across age groups, were computed. Since the introduction score across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in conflict resolution score ($H=40.318, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher conflict resolution score (Median=1.00, IQR=2) than the 4-5-year

group(Median=1.00,IQR=1),the difference was not statistically significant. The 6-7years group exhibited significantly higher conflict resolution scores (Median=3.00,IQR=1) than the 4-5 years age group(Median=1.00 ,IQR=1).Similarly, the 7-8years group showed significantly higher conflict resolution scores (Median=4.00,IQR=2) than the 4-5 years group(Median=1.00,IQR=1), and the difference is statistically significant.

The 6-7 years age group demonstrated higher conflict resolution scores (Median=3.00, IQR=1) than the 5-6 years age group (Median=1.00,IQR=2); however, the difference was not statistically significant. The 7-8-year age group obtained significantly higher conflict resolution scores (Median=4.00,IQR=2) compared to the 5-6-year age group(Median=1,IQR=2), and the difference was statistically significant. Although the 7-8years group demonstrated higher conflict resolution scores (Median=4.00,IQR=2) than the 6-7years group (Median=3.00,IQR=1) the difference was not statistically significant.

Thus, the findings suggest that conflict resolution scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). Thus, the findings indicate a significant age-related improvement in Conflict Resolution scores across the four age groups. Children in the older age groups, particularly those aged 6–7 years and 7–8 years, demonstrated significantly better performance than children aged 4–5 years. Furthermore, the 7–8 years group performed significantly better than the 5–6 years group. However, no significant differences were observed between adjacent age groups (4–5 vs. 5–6 years, 5–6 vs. 6–7 years, and 6–7

vs. 7–8 years). Overall, the results suggest a developmental progression in children's ability to identify narrative conflicts and provide appropriate resolutions within stories, with notable improvements becoming evident in the older age groups.

4.1.6 Comparison of Cohesion Scores Across Age Groups

Descriptive statistics, including mean, median, standard deviation and Interquartile range of the cohesion scores across age groups, were computed. Since the cohesion score across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in cohesion score ($H=35.222, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher cohesion score (Median=2.00,IQR=2) than the 4-5-year group(Median=1.00,IQR=1),the difference was not statistically significant. The 6-7years group exhibited significantly higher cohesion scores (Median=3.00,IQR=2) than the 4-5 years age group(Median=1.00 ,IQR=1).Similarly the 7-8years group showed significantly higher cohesion scores (Median=4.00,IQR=2) than the 4-5 years group(Median=1.00,IQR=1) and the difference is statistically significant.

The 6-7 years age group demonstrated higher cohesion scores (Median=3.00,IQR=2) than the 5-6 years age group(Median=2.00,IQR=2);however the difference was not statistically significant. The 7-8-year age group obtained significantly higher cohesion scores (Median=4.00,IQR=2) compared to the 5-6-year age group(Median=2,IQR=2), and the difference was statistically significant. Although the 7-8years group demonstrated higher cohesion scores (Median=4.00,IQR=2) than the 6-7years group (Median=3.00,IQR=2) the difference was not statistically significant.

Thus, the findings suggest that cohesion scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). Thus, the findings indicate a significant age-related improvement in Cohesion scores across the four age groups. Children in the older age groups, particularly those aged 6–7 years and 7–8 years, demonstrated significantly better performance than children aged 4–5 years. Furthermore, the 7–8 years group performed significantly better than the 5–6 years group. However, no significant differences were observed between adjacent age groups (4–5 vs. 5–6 years, 5–6 vs. 6–7 years, and 6–7 vs. 7–8 years). Overall, the results suggest a developmental progression in children's ability to establish cohesive links between narrative events and ideas, thereby enhancing the overall organization and continuity of their narratives, with notable improvements becoming evident in the older age groups.

4.1.7 Comparison of Conclusion Scores Across Age Groups

Descriptive statistics, including mean, median, standard deviation and Interquartile range of the conclusion scores across age groups, were computed. Since the conclusion score across age groups showed a non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference in Introduction score ($H=43.098, p<.05$) across the four age groups.

Post hoc pairwise comparisons with Bonferroni adjustments were conducted to identify specific group differences. Although the 5-6-year age group demonstrated a higher conclusion score (Median=2.00, IQR=2) than the 4-5-year group (Median=1.00,

IQR=1), the difference was not statistically significant. The 6-7years group exhibited significantly higher conclusion scores (Median=3.00,IQR=2) than the 4-5 years age group(Median=1.00 ,IQR=1).Similarly the 7-8years group showed significantly higher conclusion scores (Median=4.00,IQR=2) than the 4-5 years group(Median=1.00,IQR=1) and the difference is statistically significant.

The 6-7 years age group demonstrated higher conclusion scores (Median=3.00,IQR=2) than the 5-6 years age group(Median=2.00,IQR=2);however the difference was not statistically significant. The 7-8-year age group obtained significantly higher conclusion scores (Median=4.00, IQR=2) than the 5-6-year age group (Median=2, IQR=2), and the difference was statistically significant. Although the 7-8years group demonstrated higher conclusion scores (Median=4.00, IQR=2) than the 6-7years group (Median=3.00, IQR=2) the difference was not statistically significant.

Thus, the findings suggest that conclusion scores improve across age groups. The age groups 6–7 years and 7–8 years demonstrated significantly better narrative performance than children aged 4–5 years. The 7–8-year age group performed significantly better than the 5–6-year age group. And, no significant differences were observed between adjacent age groups (4–5 vs 5–6 years, 5–6 vs 6–7 years, and 6–7 vs 7–8 years). Thus, the findings indicate a significant age-related improvement in Conclusion scores across the four age groups. Children in the older age groups, particularly those aged 6–7 years and 7–8 years, demonstrated significantly better performance than children aged 4–5 years. Furthermore, the 7–8 years group performed significantly better than the 5–6 years group. However, no significant differences were observed between adjacent age groups (4–5 vs. 5–6 years, 5–6 vs. 6–7 years, and 6–7 vs. 7–8 years). Overall, the results suggest a developmental progression in children's

ability to provide complete and meaningful narrative endings, with notable improvements becoming evident in the older age groups.

4.1.8 Age-wise comparison of narrative macrostructure composite score

Descriptive statistics including mean, median, standard deviation and interquartile range of the macrostructure composite score for four age groups(4-5 years,5-6 years,6-7 years,7-8 years) were computed(See Table 4.1). Since the composite score across the age groups showed non-normal distribution, the Kruskal-Wallis test was performed. The results of the Kruskal-Wallis test revealed a statistically significant difference for composite score($H=42.56, p<.05$) across the four age groups.

Post-hoc pairwise comparisons with Bonferroni adjustment were conducted to identify specific group differences. Although the 5-6 years group demonstrated a higher composite score (Median=14.00 and IQR=10) than the 4-5 years group (Median=8.5 and IQR=9) the difference was not statistically significant. The 6-7 years group exhibited significantly higher composite scores (Median=21.70,IQR=11) than the 4-5 years age group (Median=8.50,IQR=9) with the difference reaching statistical significance .The 7-8years group showed significantly higher composite scores and statistical significance (Median=29.00,IQR=10)than the 4-5 years group (median=8.50,IQR=9).The 6-7 years age group demonstrated higher composite scores(Median=21.50,IQR=10) than the 5-6years age group (Median=14.00,IQR=10),however the difference was not statistically significant. The 7-8 years age group obtained significantly higher composite score(Median=29.00, IQR=10) compared to 5-6years age group (median=14.00, IQR=10) and the difference was statistically significant. Although the 7-8years group demonstrated higher composite scores(Median=29.00, IQR=10) than the 6-7years group(Median=21.50, IQR=11) the difference was not statistically significant(See Figure 1)

Figure 1

Comparison of Narrative Macrostructure Composite Scores Across Age Groups

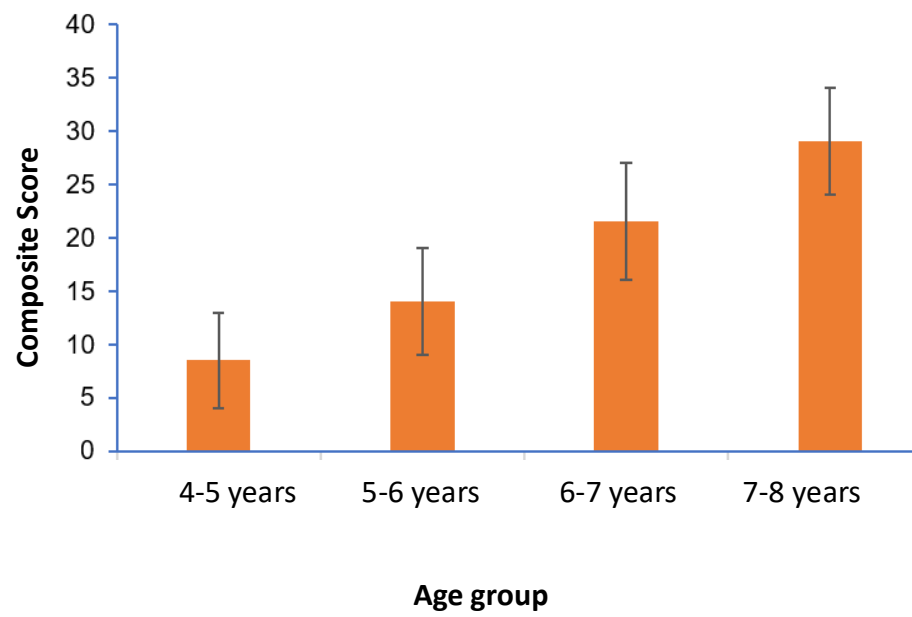


Table 4.1

Mean, Median, Standard Deviation, and interquartile range for macrostructure composite score and microstructure measures across four age groups.

	Age group	Mean	Median	Standard deviation	Interquartile range
Composite score	4-5years	10.0	8.50	4.921	9
	5-6years	15.0	14.00	6.849	10
	6-7years	21.0	21.50	7.630	11
	7-8years	28.5	29.00	5.815	10
Total Number of Words	4-5years	114.05	105.50	46.793	66
	5-6years	143.50	142.00	75.903	137
	6-7years	156.25	129.50	84.323	111
	7-8years	175.05	154.00	67.101	83
Number of Different words	4-5years	40.20	39.50	10.486	12
	5-6years	48.35	45.50	16.965	33
	6-7years	53.00	48.50	14.011	21
	7-8years	69.95	66.00	28.581	23
Mean length of Utterance per T unit	4-5years	7.81	7.92	1.47	1.92
	5-6years	9.09	.95	2.19	3.03
	6-7years	11.06	10.61	1.67	2.14
	7-8years	10.00	9.42	1.98	2.60
Subordination index	4-5years	.42	.38	.24	.33
	5-6years	.50	.51	.30	.52
	6-7years	.50	.52	.29	.47
	7-8years	.77	.72	.23	.25

4.2 Comparison of microstructure measures score across age groups.

Descriptive statistics such as mean, median, standard deviation and interquartile range of microstructure measures, total number of words, Number of different words ,Mean length of utterance, and the Subordination index across four age groups (4-5 years,5-6 years,6-7years,7-8years)were computed(See Table 4.1). The descriptive statistics for microstructure measures are given in Table

Since the Total number of words and Number of different words followed a non-normal distribution, the Kruskal-Walli's test was performed to compare these measures across age groups. In contrast, Mean length of utterance showed a normal distribution, and the Subordination index showed a near-normal distribution. Therefore, the one-way ANOVA was used for group comparisons.

The results revealed statistically significant differences across age groups in the assessed measures, indicating improvement in language performance with increasing age.

4.2.1 Comparison of Total number of words measured across age groups

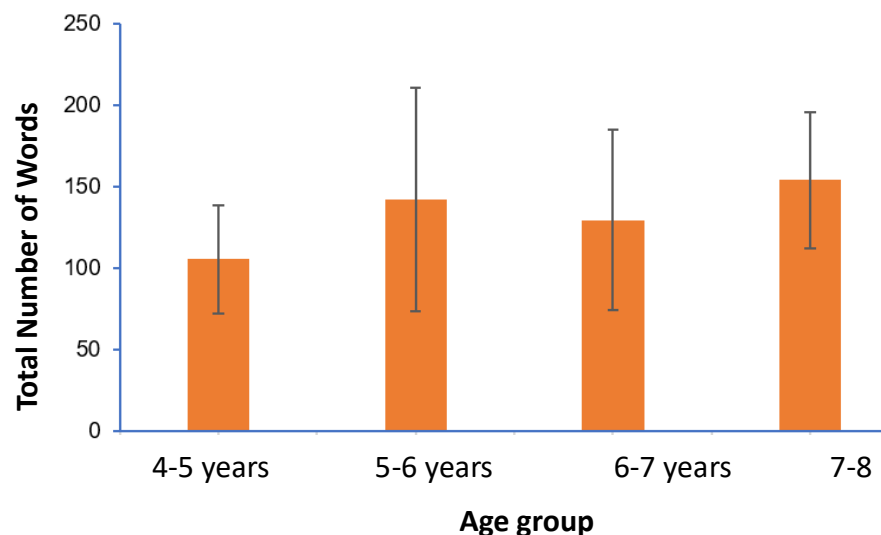
A Kruskal-Wallis test was performed to examine the differences in Total number of words across four age groups(4-5years,5-6years,6-7years,7-8years).The analysis revealed a statistically significant difference in total number of words across age groups ($H=8.280, p<.05$).Post hoc pairwise comparisons with Bonferroni adjustment were conducted to identify specific group difference.Eventhough the 5-6years age group had higher median Total Number of Words (median=142.00,IQR=137) than the 4-5years age group(Median=105.50,IQR=66) the difference was statistically significant.The 6-7 years age group exhibited higher median Total Number of Words(Median=129.50,IQR=111) compared with 4-5years age group

(Median=105.50,IQR=66),however the difference is not statistically significant.The 7-8-year age group showed significantly higher Total number of words (Median=154.00,IQR=83) than the 4-5-year age group(Median=105.50,IQR=66), with the difference reaching statistical significance. No other pairwise comparisons reached statistical significance.Thus the results suggest that the total number of words increases with age,with children aged 7-8 years producing significantly more total words than children aged 4-5years.Further ,although the 6-7 years age group demonstrated a slightly lower median Total Number of Words (Median=129.50,IQR=111) than the 5-6years age group(Median=142.00,IQR=137), the difference was not statistically significant. Likewise the 7-8years age group demonstrated higher median Total Number of Words(Median=154.00,IQR=83) than both the 5-6 years age group(Median=142.00,IQR=137) and the 6-7 years age group(Median=129.50,IQR=111) however these differences were not statistically significant.

Overall, the findings suggest that an increase in the total number of Words with advancing age is statistically significant(See Figure 2)

Figure 2

Comparison of Total Number of Words Across Age Groups

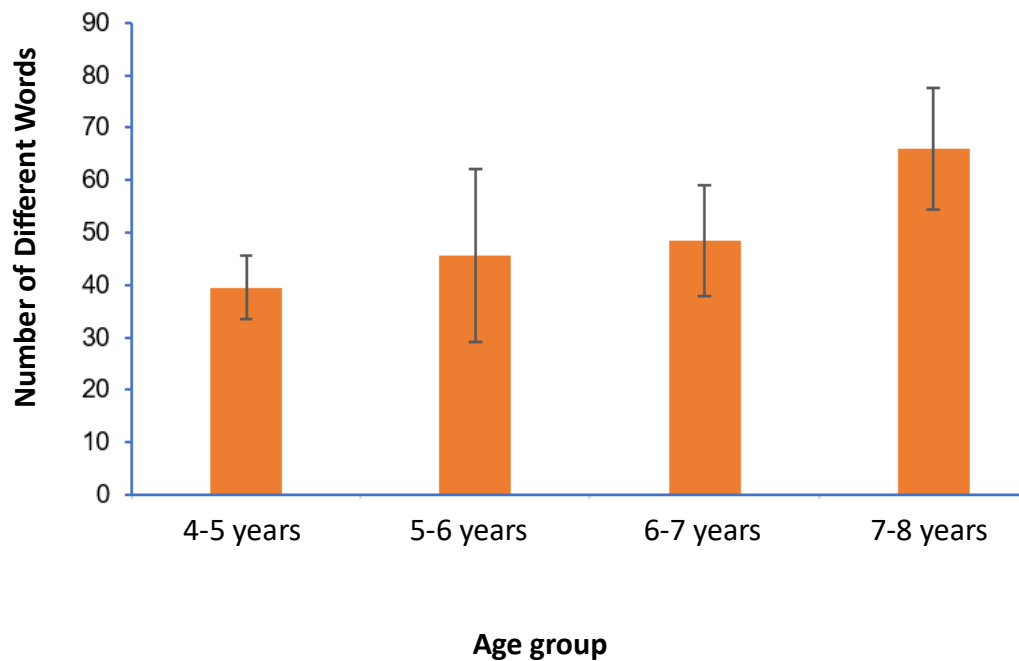


4.2.2 Comparison of Total number of different words measures across age groups

A Kruskal-Wallis test was performed to examine the differences in the total number of different words across four age groups (4-5 years, 5-6 years, 6-7 years, 7-8 years). The analysis revealed a statistically significant difference in Total number of different words across age groups, ($H(3)=21.413; p<.05$), indicating that lexical diversity increases with age. Post hoc pairwise comparisons with Bonferroni adjustment were conducted to identify specific group differences. Although 5-6 years group demonstrated higher median number of different words (Median=45.50, IQR=33) than the 4-5 years age group (Median=39.50, IQR=12), the difference was not statistically significant. Although the 6-7 years age group demonstrated higher median (Median=48.50, IQR=21) than 4-5 years group (Median=39.50, IQR=12) the difference was not statistically significant. The 7-8 years group demonstrated significantly higher median number of different words (Median=66.00, IQR=23) than the 4-5 years group (Median=39.50, IQR=12). Although the 6-7 years group demonstrated a higher median number of different words (Median=48.50, IQR=21) than the 5-6 years age group (median=45.50, IQR=33), the difference was not statistically significant. The 7-8 years age group demonstrated significantly higher median number of different words (Median=66.000, IQR=23) than the 5-6 years age group (Median=45.50, IQR=33). Although the 7-8 years age group demonstrated significantly higher median number of different words (Median=66.00, IQR=23) than the 6-7 years age group (Median=48.50, IQR=21), the difference was not statistically significant after Bonferroni correction. Thus, the results suggest that number of different words increased with age, with children between 7-8 years demonstrating significantly greater lexical diversity compared the younger age groups, particularly 4-5 years and 5-6 years (See Figure 3).

Figure 3

Comparison of Number of different words Across Age Group



4.2.3 Comparison of the mean length of utterance across age groups

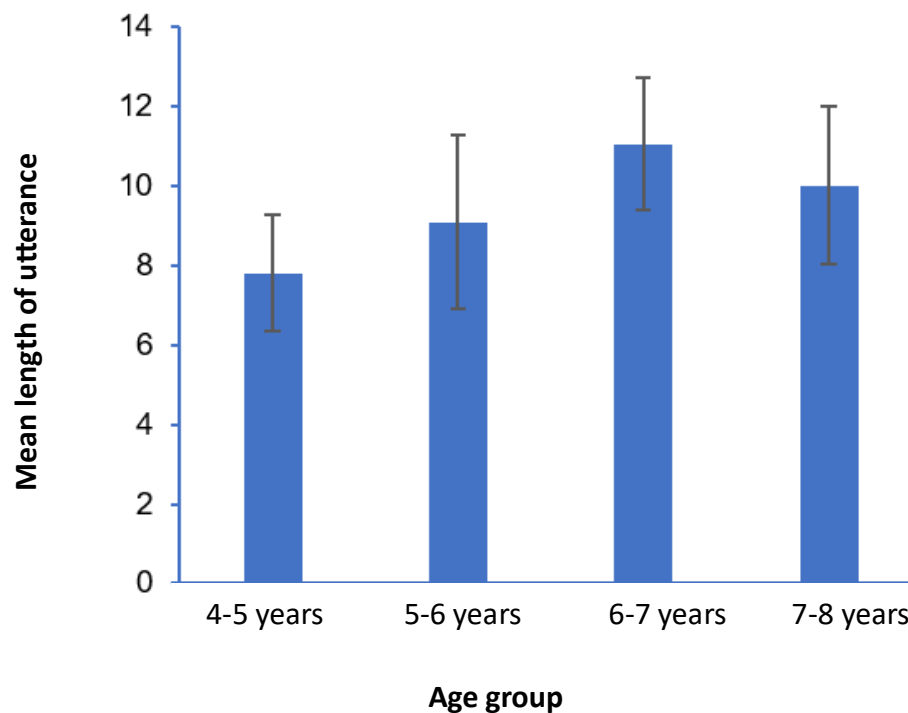
A one-way ANOVA was performed to examine the differences in Mean length of utterance (MLU) per T-unit across four age groups(4-5years,5-6years,6-7years,7-8years).The analysis revealed a statistically significant effect of age on MLU per T Unit,

$F(3,76)=11.064, p<.001$ with a effect size of .304.Post hoc Tukey's pairwise comparisons demonstrated that 5-6years group had a higher mean MLU per Tunit(Mean=9.10,SD=2.19) than the 4-5years age group(Mean=7.82,SD=1.48) however the difference was not statistically significant. The 6-7years age group demonstrated a significantly higher mean MLU per Tunit(Mean=11.06,SD=1.67) than the 4-5years age group(Mean=7.82,SD=1.48)Although the 7-8years age group demonstrated a higher mean MLU per Tunit (Mean=10.01,SD=1.48)the difference was not statistically significant.The 6-7 years age group demonstrated a higher mean MLU

per Tunit (Mean=11.06,SD=1.67)than the 5-6years group(Mean=9.10,SD=2.19) the difference was not statistically significant.Although the 7-8years age group demonstrated a higher mean MLU per Tunit(Mean=10.01,SD=1.99) than the 5-6years age group(Mean=9.10,SD=2.19) the difference was not statistically significant.And the 6-7 years age group demonstrated a higher mean MLU per Tunit (Mean=11.06,SD=1.67) than the 7-8years group(Mean=10.01,SD=1.99) the difference was not statistically significant. Thus results suggest that MLU per T-Unit increases significantly with children aged 6-7years and 7-8years demonstrating more syntactically complex sentences than 4-5 years and 5-6 years aged younger children (See Figure 4).

Figure 4

Comparison of Mean Length of Utterance per T unit Across Age Groups



4.2.4 Comparison of the Subordination index measures across the four-age group

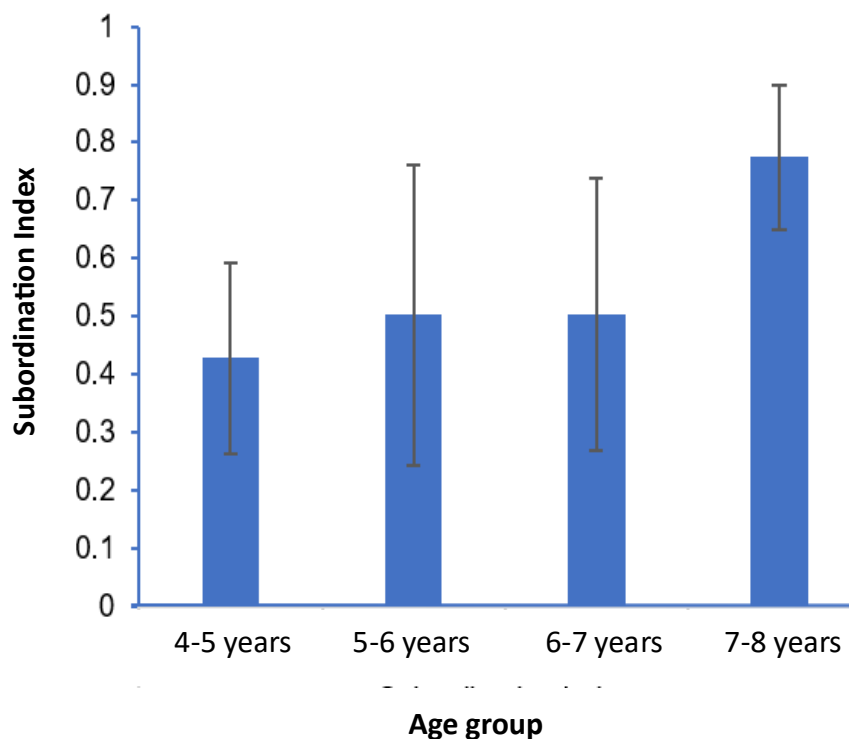
A one-way ANOVA was performed to examine the differences in Subordination index across four age groups (4-5 years, 5-6 years, 6-7 years, 7-8 years). The analysis revealed a statistically significant effect of age on subordination index

$F(3,76)=6.320, p=.001$ with effect size of .200. Post hoc Tukey's analysis of pairwise comparisons demonstrated that 7-8 years age group (Mean=0.77, SD=0.23) demonstrated significantly higher subordination index scores than the 4-5 years age group (Mean=0.42, SD=0.24), 5-6 years age group (Mean=0.50, SD=0.30) and 6-7 years age group (Mean=0.50, SD=0.29)

Thus, the results suggest that the subordination index increases significantly with age, and children between 7-8 years demonstrated greater syntactic complexity than all other age groups.

Figure 5

Comparison of Subordinate Index Across Age Groups



4.3 Comparison of macrostructure and microstructure components across Socioeconomic status groups (Low and middle).

The SES-wise comparison of individual narrative macrostructure components and the comparison of narrative macrostructure composite score are discussed in the following sections.

4.3.1 SES-wise Comparison of the Introduction Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Introduction scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Introduction scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 29.50, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 44.00$, $p > .05$), the 6–7 years age group ($U = 55.00$, $p > .05$), or the 7–8 years age group ($U = 53.50$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant influence on the Introduction component of narrative macrostructure across any of the age groups studied.

4.3.2 SES-wise Comparison of the Character Development Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Character Development scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Character Development scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 37.00, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 34.00, p > .05$), the 6–7 years age group ($U = 53.00, p > .05$), or the 7–8 years age group ($U = 57.00, p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant influence on the Character Development component of narrative macrostructure across any of the age groups studied.

4.3.3 SES-wise Comparison of the Mental States Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Mental States scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Mental States scores between the two socioeconomic status groups across any age category. In the 4–5 years age group, the comparison yielded a U value of 37.50, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 36.50, p > .05$), the

6–7 years age group ($U = 59.50$, $p > .05$), or the 7–8 years age group ($U = 51.00$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant effect on the Mental States component of narrative macrostructure across the age groups studied.

4.3.4 SES-wise Comparison of the Referencing Component of Narrative Macrostructure.

To study the effect of Socioeconomic Status on Referencing scores, the Mann–Whitney U test was performed. The data were divided into four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Referencing scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 45.00, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 25.50$, $p > .05$), the 6–7 years age group ($U = 60.00$, $p > .05$), or the 7–8 years age group ($U = 46.50$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant influence on the Referencing component of narrative macrostructure across any of the age groups studied.

4.3.5 SES-wise Comparison of the Conflict Resolution Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Conflict Resolution scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–

7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Conflict Resolution scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 39.00, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 33.00$, $p > .05$), the 6–7 years age group ($U = 52.50$, $p > .05$), or the 7–8 years age group ($U = 42.50$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant effect on the Conflict Resolution component of narrative macrostructure across the age groups studied.

4.3.6 SES-wise Comparison of the Cohesion Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Cohesion scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Cohesion scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 32.00, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 56.50$, $p > .05$), the 6–7 years age group ($U = 47.00$, $p > .05$), or the 7–8 years age group ($U = 51.50$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant influence on the Cohesion component of narrative macrostructure across any of the age groups studied.

4.3.7 SES-wise Comparison of the Conclusion Component of Narrative Macrostructure

To study the effect of Socioeconomic Status on Conclusion scores, the Mann–Whitney U test was performed across four age groups (4–5 years, 5–6 years, 6–7 years, and 7–8 years), and comparisons were made between children from low- and middle-socioeconomic status groups.

The Mann–Whitney U test results indicated that there were no statistically significant differences in Conclusion scores between the two socioeconomic status groups in any of the age categories. In the 4–5 years age group, the comparison yielded a U value of 35.50, which was not statistically significant ($p > .05$). Similarly, no significant differences were found in the 5–6 years age group ($U = 50.50$, $p > .05$), the 6–7 years age group ($U = 48.50$, $p > .05$), or the 7–8 years age group ($U = 44.50$, $p > .05$).

Overall, these findings indicate that socioeconomic status did not have a significant influence on the Conclusion component of narrative macrostructure across any of the age groups studied.

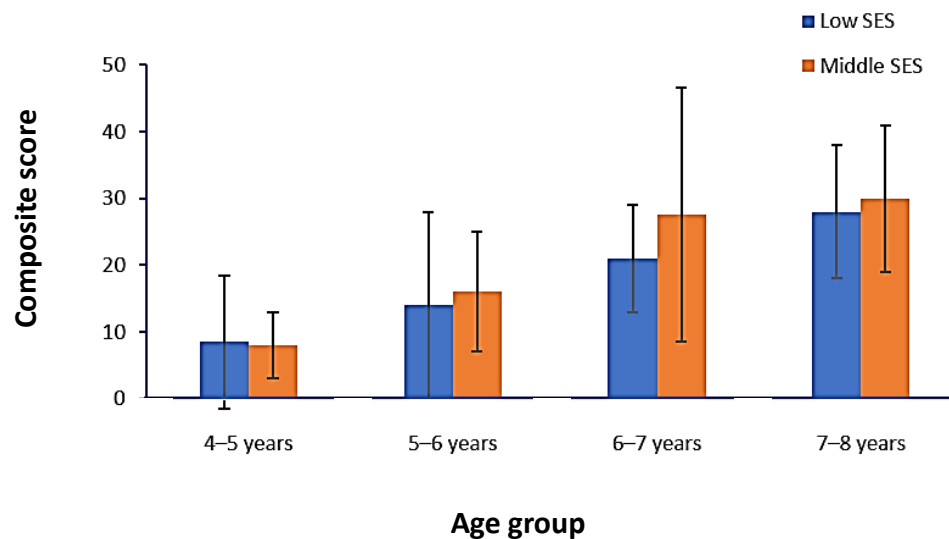
4.3.8 SES-wise Comparison of macrostructure composite score

To study the effect of Socioeconomic status on the narrative macrostructure composite score, the Mann-Whitney U test was performed. The data were split into age groups (4-5 years, 5 -6 years, 6 -7 years, 7 -8 years), and comparisons were performed for low- and middle-socioeconomic status groups.

The results revealed no statistically significant difference between low- and middle-socioeconomic status groups across all age groups. For 4-5years age group the difference was not significant($U=37.5, p>.05$). Similarly, no significant differences were observed for the 5-6 year age group($U=41, p>.05$), 6-7year age group($U=57.5, p>.05$) and 7-8year age group($U=48, p>.05$). These finding suggest that socioeconomic status did not significantly affect narrative macrostructure performance.

Figure 6

Comparison of macrostructural Composite scores between Low and Middle SES across age groups



4.3.9 Comparison of microstructure measures score across low and middle-socioeconomic status groups.

The comparison of individual narrative macrostructure components and the comparison of narrative macrostructure composite score are discussed in the following sections.

To study the effect of Socioeconomic status on narrative microstructure measures, the Mann-Whitney U test was performed. The data was split into age

groups(4-5 years,5-6years,6-7years,7-8years) and respective comparisons were performed for low and middle socioeconomic status groups.

For children aged 4-5years, the results revealed no statistically significant difference between the low SES and middle SES groups for narrative microstructure measures TNW($U=35, p>.05$), NDW($U=30, p>.05$), MLU per T unit($U=34, p>.05$) and SI($U=.86, p>.05$) These finding suggest that socioeconomic status did not significantly influence narrative macrostructure and microstructure performance for children aged 4-5 years.

For children aged 5-6years, the results revealed no statistically significant difference between the low SES and middle SES groups for narrative microstructure measures TNW($U=22, p>.05$), NDW($U=28, p>.05$), MLU per T unit($U=26, p>.05$) and SI($U=35.5, p>.05$) These finding suggest that socioeconomic status did not significantly influence narrative macrostructure and microstructure performance for children aged 5-6 years.

For children aged 6-7years, the results revealed no statistically significant difference between the low SES and middle SES groups for narrative microstructure measures TNW($U=49, p>.05$), NDW($U=41, p>.05$), MLU per T unit($U=31, p>.05$) and SI($U=38.5, p>.05$) These finding suggest that socioeconomic status did not significantly influence narrative macrostructure and microstructure performance for children aged 6-7 years.

For children aged 7-8years, the results revealed no statistically significant difference between the low SES and middle SES groups for narrative microstructure measures TNW($U=37, p>.05$), NDW($U=40.5, p>.05$), MLU per T unit($U=41, p>.05$) and SI($U=58, p>.05$) These finding suggest that socioeconomic status did not significantly

influence narrative macrostructure and microstructure performance for children aged 7-8 years.

Figure 7

Performance of children on Total Number of Words between Low and Middle SES

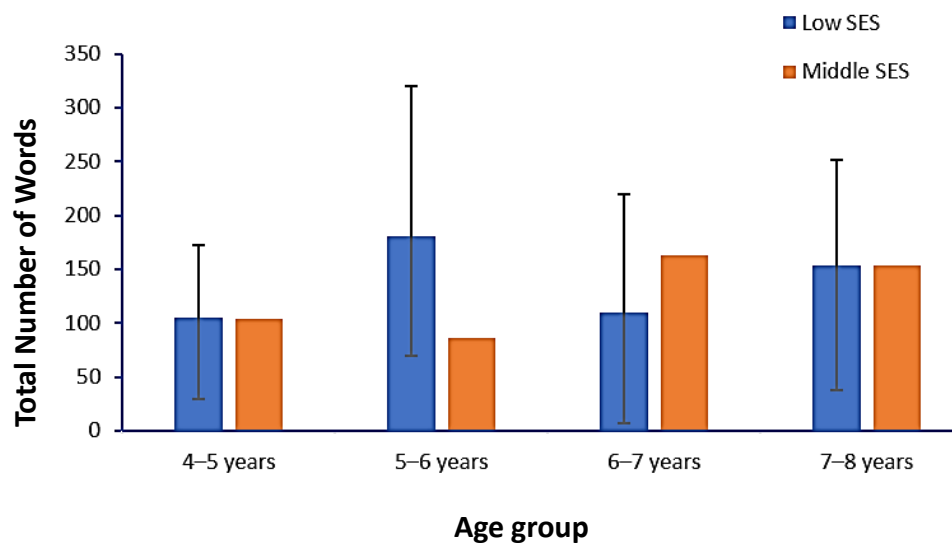


Figure 8

Performance of children on Number of Different Words between Low and Middle SES

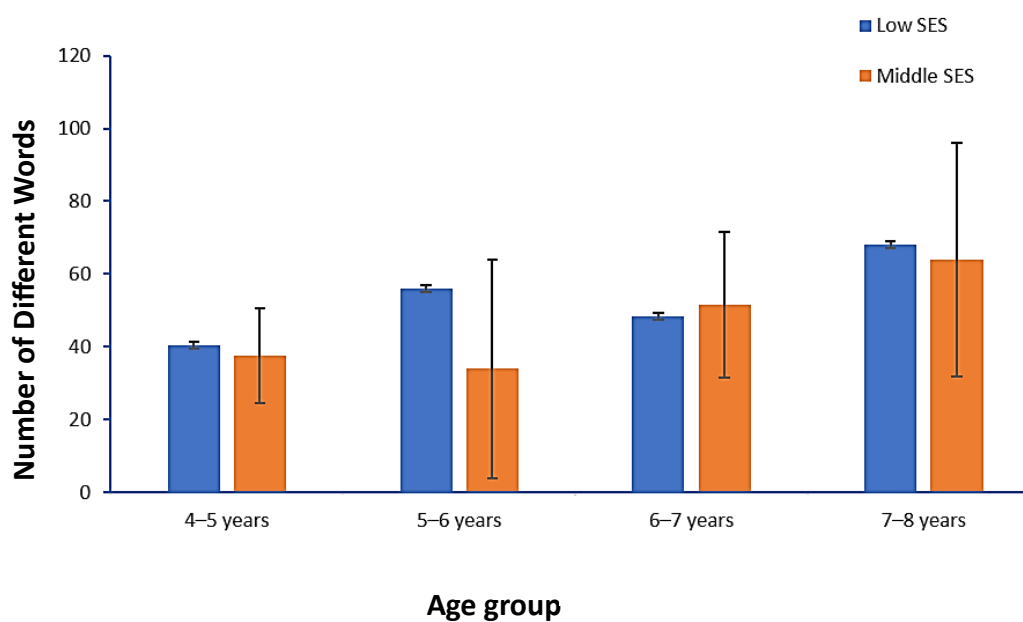
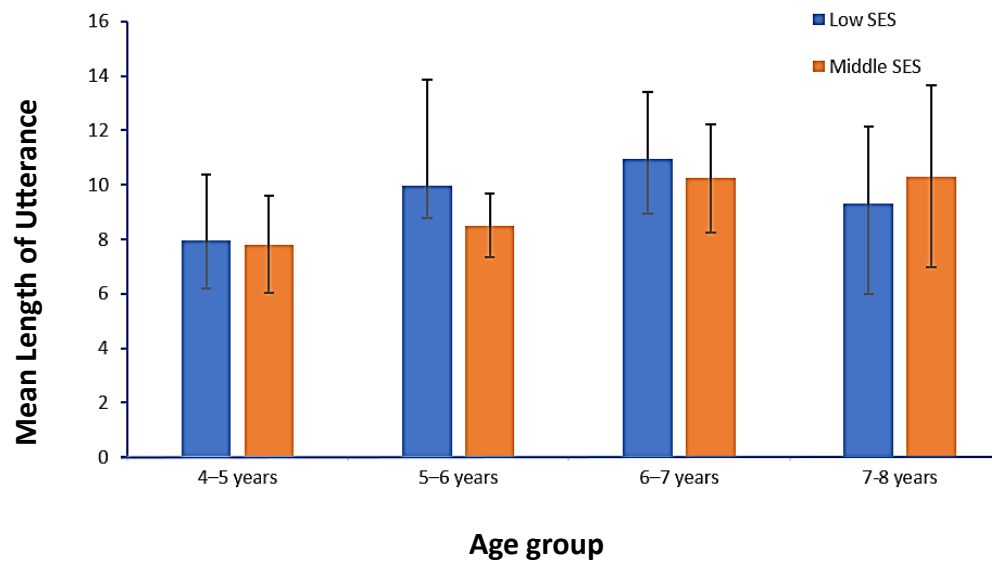
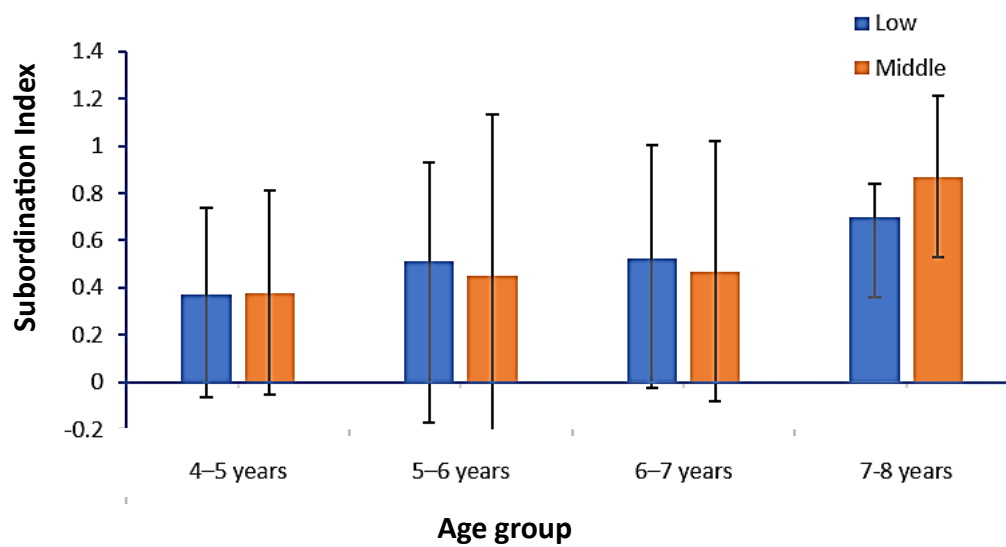


Figure 9

Performance of children on Mean Length of Utterance between Low and Middle SES

**Figure 10**

Performance of children on Subordination Index between Low and Middle SES



4.5 Inter-rater reliability

Inter-rater reliability was established to determine the consistency of scoring across raters. Three Tamil-speaking Speech Language Pathologists independently rated 10% of the total narrative samples. The scores assigned by the raters for all narrative parameters (Macrostructure composite score, TNW, NDW, MLU, SI) were subjected to Spearman's rank-order correlation analysis.

The results revealed significant positive correlations among the ratings of all three raters across all narrative parameters. The Spearman correlation coefficient (r) ranged from 0.75 to 1.00, indicating high agreement between raters. All correlations were statistically significant ($p < .05$). These findings demonstrate high consistency in scoring across raters and support the reliability of the narrative analysis procedures used in the present study.

Chapter 5

Discussion

The present study had three main objectives. First was to investigate if there was a difference in the performance of 4 to 8 year old Tamil speaking children in terms of narrative macrostructural measures. Second objective was to investigate if there was a difference in the performance of 4 to 8 year old Tamil speaking children in terms of narrative microstructural measures. Third objective was to compare the performance of the participants belonging to the lower and middle SES in terms of micro- and macrostructural measures. The results of the study are discussed below

5.1 Comparison of narrative macrostructure across age groups

The results of the present study revealed that the narrative macrostructure increases with age, across four different age groups(4-5years,5-6years,6-7years,7-8years). These findings suggest that the narrative macrostructure abilities continue to develop throughout the early school years, with the older children demonstrating better organization and coherence in storytelling when compared to younger children. The improvement in narrative abilities may be attributed to maturation of cognitive linguistic abilities and gradual development of organizational, inferencing and sequencing skills required for effective narrative production.

The findings of the present study are consistent with those reported by Kosutar et al. (2022), who observed that 8-year-old children achieved significantly higher scores on narrative macrostructure compared to 6-year-old children. Similar developmental trends have also been reported by Makinen et al. (2014) and Heilmann et al. (2010). These authors demonstrated that narrative macrostructure abilities improve with increasing age, indicating that children gradually acquire the ability to construct more complete and coherent narratives as they mature. Soodla and Kikas (2010) also reported

that older children produced more organized and informative narratives with better inclusion of story grammar components when compared to younger children.

Several developmental studies have further emphasized that narrative macrostructure undergoes substantial growth between the ages of 3 and 7 years (Berman and Slobin,1994; Pearson,2002; Schnedier et al.,2006; Trabasso et al.,1992). According to Soodla and Kikas(2010), children's narratives gradually develop from simple event sequences into more coherent and goal-directed episode structure as they mature. And children become more capable of producing structurally complete and coherent narratives around 7-8years of age. These findings support the present study, where older children demonstrated better narrative performance compared to younger children.

The results of the current study are also supported by evidence from Bilingual population. Studies involving English-Swedish bilinguals have reported that children aged 6-7years performed better on narrative macrostructure than younger children aged 4-6 years. Similarly, Lindgren (2018) reported comparable findings among Swedish monolinguals and German-Swedish bilinguals, where 6-year-old children demonstrated superior macrostructure abilities compared to 4-year-old children. The consistency of findings across monolingual and bilingual populations suggests that age-related improvement in narrative macrostructure may reflect a universal developmental progression in narrative organization skills, irrespective of linguistic background.

Overall, the findings of the present study indicate that age plays a significant role in the development of narrative macrostructure abilities in children. As children grow older, they appear to develop enhanced abilities to structure stories coherently, integrate story grammar elements effectively, and produce narratives with greater complexity and organization.

5.2 Comparison of narrative microstructure measures across age groups.

The results of the present study revealed that the narrative microstructural measure, Total Number of Words (TNW), increased significantly across the different age groups, indicating an age-related improvement in narrative productivity. Similar findings were reported by Khan et al. (2016) in English-speaking 3-6-year-old children. Tilstra and McMaster (2007) also observed a significant age-related increase in TNW among kindergarteners, first graders, and second graders. Likewise, a significant difference in TNW with age was demonstrated by Safwat et al. (2013). The increase in TNW with age could be attributed to children's improving ability to organise and relate events hierarchically within narratives (Heilmann et al., 2010). TNW reflects story length and narrative productivity, which become richer and more elaborate as children acquire vocabulary and gain greater exposure to narrative forms during the preschool and school years (Munoz et al., 2003; Heilmann et al., 2010; Justice et al., 2006). The gradual increase in TNW observed in the present study may therefore reflect age-related growth in vocabulary and language organisation.

The other microstructural narrative measure, Number of Different Words, was also found to increase with age across the four different age groups. The results of the current study are consistent with those reported by Makinen et al. (2014) and Westerveld et al. (2004), who observed an age-related increase in TNW, a measure of narrative productivity, and NDW, a measure of lexical diversity. Similarly, Justice et al. (2006) demonstrated a linear increasing trend in TNW and NDW among children between 5 and 10 years of age. The increase in NDW with age observed in the present

study may be attributed to the gradual expansion of vocabulary and improved lexical diversity.

The results of the current study for microstructural measure, Mean length of Utterance per T-Unit, revealed that the older age groups (6-7 years and 7-8 years) demonstrated higher MLU per T-Unit than the younger age groups (4-5 years and 5-6 years), indicating an age-related increase in syntactic complexity. According to Noro and Mota (2019), MLU increases with age as children develop more advanced syntactic organisation and linguistic maturity. Similar findings were reported by Ravichandran et al. (2020) among Tamil-speaking children aged 6-8 years, and by Safwat et al. (2013) among children aged 2-5 years. These findings suggest that older children tend to produce longer, more syntactically complex utterances during narrative production. However, Ravichandran et al. (2020) also reported only minimal differences in syntactic measures (MLU) and Semantic measures (TNW and NDW) between first- and second-grade children during story retelling and self-narrative tasks. The authors attributed this finding to the minimal age difference between the groups studied. In contrast, the present study included a broader age range, which may have contributed to the clearer age-related differences observed in MLU. Therefore, the increase in MLU observed in the present study may reflect developmental growth in syntactic organisation and narrative language abilities with age.

Another important microstructural measure is the Subordination Index, which calculates the Total number of subordinate clauses per T-unit and reflects the syntactic complexity of children's narrative production (Košutar et al., 2022). Previous studies have demonstrated that clausal density increases with age up to grade 12 for both narration and conversation (Hunt, 1965; Klecan-Aker & Hedrick, 1985; Loban, 1976). Similarly, Košutar et al. (2022) reported that although both 8-year-old and 6-year-old

children used subordinate clauses in their narrative production, 8-year-olds had a higher clause density than 6-year-olds, indicating developmental growth in syntactic complexity with age. Comparable findings were also reported by Mäkinen et al. (2014), who observed age-related improvements in syntactic organisation and narrative complexity among children. The increase in subordination index observed in the present study may therefore reflect improved syntactic complexity and syntactic organisation in narrative production that continue to develop with age.

5.3 Comparison of macrostructural and microstructural measures between the low and Middle Socioeconomic status groups in Tamil-speaking children.

The present study revealed that the macrostructural composite score did not demonstrate a statistically significant difference between the low and middle socioeconomic status groups. This indicates that there is no relationship between socioeconomic status of the child and the narrative production in terms of their macrostructural measures. Several studies have explored the role of Socioeconomic status on narrative performance. Kulkofsky et al. (2008) and Resee et al. (2010) reported that narrative quality is not predicted by socioeconomic status when maternal education is considered. Alt et al. (2016) in the study of the association between SES on narrative production in Spanish-English children found that SES did not predict the Spanish narrative sample, in which the children are native Spanish speakers, whereas SES predicted the narrative performance in English samples. Though it is found that Socioeconomic status holistically affects the child's language in several measures including lexical diversity, clausal density, literacy development, which also includes narrative performance (Hoff, 2013), the present study did not demonstrate a significant influence of SES on narrative macrostructure. The possible explanation for the absence of significant socioeconomic status differences in narrative macrostructure could be the

influence of Tamil as the children's native language. Since all participants were native Tamil speakers, exposure to the native language may have contributed to the comparable narrative macrostructure performance between SES groups.

The present study compared the microstructural measures such as Total Number of Words, Number of Different Words, Mean Length of Utterance per T Unit, and Subordination index across Low and Middle Socioeconomic status groups. And the results demonstrated that there is no statistically significant difference in these microstructural measures across the Socioeconomic status groups. The microstructural narrative components Total number of words measured the talkativeness, volubility, and language facility of the children in story narration (Klee,1992),Number of different words measures the semantic or lexical diversity, giving the overall impression about the variety of words used(Miller,1991;Watkins et al.,1995).Similarly Mean length of utterance per T Unit, in terms of morphemes, measures the overall language growth and a simple index of grammatical development (Brown,1973). The Subordination index is an index of the density of clauses in sentences (Paul,2012).Previously Alt et al.,(2015) studied the effect of SES in microstructure measures such as NDW,MLU and SI in Spanish-speaking children with a mean age of 5.7years and found that SES did not predict microstructure measures at any grade level whereas the similar study in English-learning children demonstrated that SES predicted microstructure measures. The possible reason that goes in par with the present study is that , SES did not predict the narrative performance in Spanish language for Spanish-speaking children similarly in the current study SES did not predict the performance in Tamil narratives for Tamil Speaking children . The existing studies on the comparison of SES and clausal density revealed that SES highly predicts the complex usage of complex sentences (Huttenlocher et al.,2002) and complex syntax form (Wilder and Redmond,2021);

however, the results of the current study demonstrated that SES did not predict the Subordination index, similar to the findings of Alt et al. (2015). The possible explanation for these contrary research findings is that similar school environments and shared classroom linguistic experiences could have reduced the SES-related differences in syntactic development.

5.4 Research hypothesis and findings

The findings of the present study revealed a significant age-related difference in narrative macrostructural measures. Therefore, the null hypothesis(H01) was rejected.

The findings of the present study revealed a significant age-related difference in narrative microstructural measures. Therefore, the null hypothesis(H02) was rejected.

The findings of the present study did not reveal a significant difference in narrative macrostructural and microstructural measures. Therefore, the null hypothesis(H03) was accepted.

Chapter 6

Summary and Conclusion

The present study investigated narrative discourse development in typically developing Tamil-speaking children between 4 to 8 years of age. Narrative performance was examined at both macrostructural and microstructural levels across different age groups and between lower and middle socioeconomic groups. The findings revealed that socioeconomic status did not significantly influence narrative macrostructural or microstructural measures. In contrast, significant age-related differences were observed in narrative performance. Older children demonstrated better story organisation, greater inclusion of story grammar elements, increased narrative productivity, richer vocabulary, and more complex syntactic structures than younger children.

The findings indicate that narrative discourse abilities continue to develop substantially during the preschool and early school years, reflecting the progressive maturation of linguistic, cognitive, and discourse-level skills. The absence of significant socioeconomic status differences suggests that age-related developmental factors may play a greater role in narrative development than socioeconomic differences within the population studied. The study provides preliminary, albeit limited, developmental information on the development of narrative discourse in Tamil-speaking children that may support clinical assessment, interpretation, and intervention planning. Overall, the findings highlight the value of narrative analysis as a comprehensive tool for understanding higher-order language development, while underscoring the need for further research on narrative discourse across diverse Tamil-speaking populations.

Limitations and future directions

While the present study provides valuable information regarding narrative discourse development in typically developing Tamil-speaking children, certain limitations should be considered while interpreting the findings.

1. The study was conducted exclusively on typically developing children and did not include children with speech, language, hearing, learning, or neurodevelopmental disorders due to practical reasons. Future studies on narrative development in children with various communication disorders may have a more direct clinical application.
2. The participants were recruited from selected schools within a specific region of Tamil Nadu. Variations in dialect, educational experiences, and cultural storytelling practices across different regions may influence narrative production. Therefore, the results of the present study cannot be generalized to all Tamil-speaking children.
3. Narrative samples were elicited using a story-generation task alone. Although story generation provides valuable information regarding spontaneous narrative production, previous research has shown that narrative performance may vary across elicitation contexts. The inclusion of additional narrative tasks, such as story retelling and personal narratives, may have provided a more comprehensive understanding of children's narrative abilities.
4. The distribution of participants across socioeconomic status groups was unequal due to the ease of availability of participants (use of convenience and purposive sampling). The study included a smaller number of children in the middle socioeconomic status group compared to the low socioeconomic status group. This unequal population distribution could have influenced the sensitivity of the analysis in identifying the effect of socioeconomic status on narrative performance.

5. Future studies can examine the relationship of the development of narrative skills and their association with academic abilities. Such studies in the Indian context can provide us a window into understanding the nature of contribution of narrative skills in Indian languages which are linguistically and orthographically different from the Western languages. A better understanding of such a relationship may help us predict academic outcomes by assessing narrative skills.

6. Longitudinal studies may provide distinctive information on the development of narrative skills rather than cross-sectional studies alone.

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APPENDIX

Appendix A

Narrative Scoring Scheme proposed by Heilmann et al (2010).

Characteristic	Proficient=5	Emerging=3	Minimal=1
Macro-structure Measure			
Introduction	<u>Setting:</u> States general place and provides some detail about the setting (e.g., reference to time of the setting, daytime, bedtime, season) Setting elements are stated at appropriate place in story. <u>Characters:</u> Main characters are introduced with some description or detail provided	<u>Setting:</u> -States general setting but provides no detail. - Description or elements of setting are given intermittently through story. - May provide description of specific element of setting, e.g., the frog is in the jar. <u>Characters:</u> Characters of story are mentioned with no detail or description.	Launches into story with no attempt to provide the setting or introduce the characters.
Character Development	-Main character(s) and all supporting character(s) are mentioned. -Discriminates between main and supporting characters, e.g., more description of, or emphasis upon, main character(s). -Narrates in first person using character voice, e.g., "You get out of my tree", said the owl.	- Both main and active supporting characters are mentioned. - Main characters are not clearly distinguished from supporting characters.	-Inconsistent mention of involved or active characters. -Character(s) necessary for advancing the plot are not present.
Mental States	-Mental states of main and supporting characters are expressed when necessary for plot development and advancement. -A variety of mental state words are used.	- Some use of evident mental state words to develop character(s). -A limited number of mental states words used inconsistently throughout the story	-No use of mental state words to develop character(s)
Referencing	-Provides necessary antecedents to pronouns -References are clear throughout story.	-Inconsistent use of pronouns or antecedents	-Excessive use of pronouns -No verbal clarifiers used -Unaware that the listener is confused

Conflict Resolution	Clearly states all conflict/resolutions and event/reactions critical to advancing the plot of the story.	Underdeveloped description of conflict/resolutions and event/reactions critical to advancing the plot of the story. OR Not all conflict/resolutions or event/reactions critical to advancing the plot are present	-Random resolution(s) or reaction(s) stated with no mention of cause or conflict. OR -Conflict (s) or event(s) mentioned without resolution. OR -Many conflict/resolutions or event/reactions critical to advancing the plot are not present.
Cohesion	-Events follow logical order -Critical events are induced while less emphasis is placed on minor events -Smooth transitions provided between events	-Events follow a logical order -Excessive detail or emphasis provided on minor events, leading listener the listener astray -Or transition to next event unclear -Or minimal details given for critical events -Or equal emphasis on all events.	No use of smooth transitions.
Conclusion Scores are based on the conclusion of the final event as well as the wrap up of the entire story.	Story is clearly wrapped up using general concluding statements such as “and they were together again happy as could be”.	Specific event is concluded, but no general statement made as to the conclusion of the whole story.	Stops narrating and listener may need to ask if that is the end.

Note: Adapted from Language disorders from infancy through adolescence: Listening, speaking, reading, writing, and communicating (5th ed), by R. Paul, C. F. Norbury, & C. Gosse, 2018, Elsevier.

Appendix B

‘En Theru’ Story stimuli used for Narrative elicitation

