

Characteristics of Parts of Speech in the Language of Autistic Children Aged 6 – 10 Years (A Case Study in Vietnam)

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Abstract: The age of 6 – 10 years is a period during which children prepare for and attend primary school. By this age, typically developing children have largely developed spoken-language abilities required to acquire knowledge in the school environment. Meanwhile, children with autism spectrum disorder (ASD) continue to experience substantial language difficulties, particularly in using a diverse range of parts of speech. This study analyzes the characteristics of parts of speech in the language of children with autism aged 6 – 10 years, compares part-of-speech patterns across different levels of autism severity, compares them with typically developing children, and compares them with autistic children at an earlier developmental stage (3 – 6 years). The findings indicate that the language development of autistic children aged 6 – 10 years is significantly delayed relative to that of typically developing children, which affects their acquisition of school knowledge. The study therefore confirms the need for continuous language intervention, particularly the expansion and consolidation of vocabulary across parts of speech, in order to enable children to use language more richly and flexibly in communication and learning.

Keywords: Autism spectrum disorder, child language, parts of speech, vocabulary development, communication, Vietnamese.

INTRODUCTION

Language is one of the developmental domains that is most profoundly affected in children with persistent difference in vocabulary, syntax, and pragmatics (Schaeffer *et al*, 2023). Within this domain, the distribution of parts of speech – nouns, verbs, adjectives and other word classes – is an important indicator of differences between autistic and normal children in both the structural and functional aspects of language. International studies indicate that autistic children tend to depend proportionately on concrete words, particularly nouns, while showing delays or limitations in acquiring and using relational or general word classes such as verbs, adjectives, and function words. These limitations not only reduce expressive accuracy but also affect abstract thinking and social communication (Kissine, 2023).

In this context, Vietnamese provides a distinctive setting for investigation because it is an isolating, highly analytic language in which parts of speech play a central role in meaning expression without relying on inflectional morphology. However, empirical research on Vietnamese-speaking autistic children remains limited. Pham & Nguyen (2020) noted that autistic children frequently rely on formulaic expressions in speech, indicating rigidity and limited lexical diversity. To date, however, relatively few studies have

systematically analyzed the distribution of parts of speech in this population, particularly during the primary-school period.

The age range of 6 – 10 years is particularly important for lexical-semantic development: typically developing children at this stage substantially expand their vocabulary toward increasingly diverse and abstract concepts, whereas autistic children often maintain an imbalance characterized by heavy reliance on nouns and limited use of verbs, adjectives, and other word classes. This creates difficulties in learning and social communication, especially in school contexts where language requires flexibility and precision.

Accordingly, this study aims to clarify the characteristics of part-of-speech use among Vietnamese-speaking autistic children aged 6 – 10 years. Specifically, it aims to: (1) quantify the distribution of major parts of speech in naturalistic and semi-structured language; (2) compare these characteristics across different levels of autism severity; and (3) compare the part-of-speech distribution of autistic children in this age range with that of younger autistic children and typically developing children. The findings contribute not only additional evidence to the international literature on atypical lexical development but also practical implications for language intervention

and education in Vietnam and in broader international contexts.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Literature Review

Language disorder in autistic children is highly heterogeneous. While pragmatic impairment is nearly ubiquitous, structural language components - including vocabulary, morphology, and syntax - vary considerably between individuals and subgroups (Tager-Flusberg & Joseph, 2003). Foundational research has identified neurocognitive-linguistic phenotypes in autism, distinguishing children whose language is relatively close to typical development from those with marked language impairment (Kjelgaard & Tager-Flusberg, 2001). This diversity demonstrates the importance of analyzing individual word classes (nouns, verbs, adjectives, and function words) instead of treating “language” as a homogenous construct.

Cross-linguistic and longitudinal evidence indicates that many autistic children show disproportionate reliance on nouns, while their use of verbs, adjectives, and function words develops more slowly or remains restricted. Studies in English and other languages have documented persistent noun dominance and limited lexical diversity from preschool through school age (Swensen *et al.*, 2007; Tek *et al.*, 2014). These findings suggest that atypical part-of-speech distribution is a prominent characteristic of autistic language across diverse linguistic contexts.

The predominance of nouns in autistic children's vocabularies has been explained from two perspectives: cognitive-communicative factors and language input. First, nouns denote concrete objects and therefore allow stronger form–meaning associations than relational or abstract concepts. Second, reduced social attention and limited participation in interaction may decrease opportunities to learn verbs and function words (Naigles *et al.*, 2011). Third, instructional practices and family environments may focus heavily on labeling objects, inadvertently reinforcing a noun-dominant vocabulary (Arunachalam & Luyster, 2016). These explanations indicate that cognitive, social, and environmental factors interact in producing atypical part-of-speech distributions.

The age of 6 – 10 years represents an important developmental window. Typically developing children at this age expand their repertoires of

verbs, adjectives, and grammatical markers, establishing foundations for academic language and literacy (Condouris *et al.*, 2003). By contrast, autistic children often retain noun dominant vocabularies, with persistent deficits in verbs and modifiers that create difficulties in understanding predicates, complex sentences, and academic discourse (Eigsti *et al.*, 2007). This highlights the need for word-class-specific interventions during the school years.

Empirical studies in Vietnam remain limited but show trends broadly consistent with international findings. Vietnamese autistic children often have restricted expressive vocabularies, use formulaic expressions extensively, and diversify their parts of speech slowly (Nguyen Thi Giang, 2024; Đỗ Thị Thao, 2017). Standardized research on vocabulary development in typically developing Vietnamese children (Luu Thi Lan, 1996) provides an important basis for comparison. Given the isolating nature of Vietnamese, examining part-of-speech distribution among Vietnamese autistic children can extend cross-linguistic knowledge and clarify the interaction between language-specific structure and constraints associated with ASD.

Despite extensive international research, important gaps remain. Few studies have conducted systematic quantitative analyses of part-of-speech distribution among school-aged autistic children in under-researched languages such as Vietnamese. Comparisons across levels of autism severity and longitudinal developmental evidence are also limited. The present study addresses these gaps by providing a corpus-based analysis of part-of-speech use among Vietnamese autistic children aged 6 – 10 years, comparing their patterns with typical developmental benchmarks and stratifying autistic children by severity, thereby contributing new cross-linguistic and developmental evidence.

Theoretical Framework

The concept of parts of speech

A part of speech is a class of words in a language defined according to grammatical characteristics. Researchers distinguish parts of speech on the basis of three criteria:

- General semantic meaning (the shared categorical meaning).
- Combinatorial potential (the criterion concerning formal realization).
- Syntactic function (the ability to serve as sentence constituents, functional criteria).

Classification of Parts of Speech in Vietnamese

Based on general meaning, combinatorial potential, and syntactic function, Vietnamese parts of speech can be classified as: nouns, verbs, adjectives, numerals, pronouns, determiners/quantifiers, adverbs, relational words, modal particles, and interjections (Diep Quang Ban, 2005). This classification is also adopted for the analysis in the present study.

The characteristics of each part of speech in Vietnamese are as follows:

- Nouns: Content words with entity-denoting meaning, used to name objects/entities. They combine with classifiers and quantity-indicating plural markers (*những, các*) before the noun, and with demonstratives (*này, nó*) after it. Nouns commonly function as subjects or complements in sentences.
- Verbs: Content words expressing processes, including dynamic, stative, and relational processes. Verbs combine with temporal adverbs (*đã, đang, sẽ...*) before them and with the temporal adverb (*rồi*) after them. They commonly function as predicates in sentences.
- Adjectives: Content words expressing properties or characteristics such as color, taste, and sound... They may combine with words such as *rất, hơi, khá, quá* before them and *lắm, quá, cực kì* after them. Adjectives function as predicates in sentences.
- Numerals: Content words expressing cardinal quantities. They can function as the principal element in endocentric phrases and are divided into two types: cardinal numerals and ordinal numerals.
- Pronouns: Content words used to substitute for other semantically explicit expressions. Vietnamese pronouns are commonly classified as personal, demonstrative, and interrogative pronouns.
- Articles: Content words expressing quantity and definiteness. They occur before nouns in noun phrases and are divided into two types: quantity-indicating articles and definite articles.
- Adverbs: Function words that modify verbs and adjectives. They are divided into two types: modal adverbs (*chẳng, chưa, đừng...*) and non-modal adverbs (*ra, lên, vào, xuống...*)
- Relational words: Function words expressing logical relations and linking words, phrases, or clauses. They include coordinating relations (*và, với, còn, song, hay, hoặc...*) and subordinating relations (*vì, nên, nếu, tuy, hễ...*)

- Modal particles: Words expressing affective or attitudinal nuances. Modal particles are classified into two categories: intonation particles (*à, ừ, hử, hử...*) and focus particles (*mà, cả, thì, chính, những...*)
- Interjections: Words reflecting psychological or affective phenomena. Interjections are divided into two types: primary interjections (exclamatory cries: *ôi, a, ồ, ái chà...*) and secondary interjections (words or word combinations with clear lexical meanings: *trời, trời ơi, cha mẹ ơi...*)

RESEARCH METHODOLOGY

The study employed a longitudinal case-study design (Creswell, 2018) to investigate in depth the distribution of parts of speech in the language of autistic children aged 6 - 10 years. This approach made it possible to capture both differences across levels of autism severity and developmental changes during the school-age period.

The study adopts a case study design within a mixed-methods framework, aiming to both provide an in-depth description of individual characteristics and ensure generalizability through quantitative statistics. This approach is considered appropriate for investigating the language of children with developmental disorders, whose linguistic profiles are diverse and heterogeneous (Creswell & Plano Clark, 2018; Yin, 2018).

Participants and Sample

The study involved 30 autistic children aged 6 - 10 years who had been diagnosed according to DSM-5 criteria by licensed clinicians. The children were divided into three groups: mild ($n=10$), moderate ($n=10$), and severe ($n=10$). Inclusion criteria were: (i) the ability to produce basic utterances; and (ii) no severe comorbid disabilities (hearing, speech, or motor impairments).

Data Collection

Over a 12-month period, each child was recorded for an average of one hour per month in individual intervention classrooms and family communication settings. The fieldwork approach enabled the collection of naturalistic and representative language data (Heath & Street, 2008). Concurrently, researcher observation logs were also maintained to enhance data robustness.

Qualitative analysis identified patterns of part-of-speech use and salient linguistic characteristics. Quantitative analysis included descriptive statistics (frequency, percentages, and means), as well as comparisons across autism-severity groups and

with typically developing children at earlier developmental stages.

Research Ethics

The study complied with ethical standards for research involving children. Parents provided voluntary informed consent and were fully informed about the purpose of the research. Data

were coded and kept strictly confidential in accordance with APA guidance (2017)

RESULTS AND DISCUSSION

Research findings

A survey on part-of-speech patterns among autistic children aged 6 – 10 years

Number and percentage of parts of speech in the mild autism group

Table 1. Number and percentage (%) of parts of speech in the vocabulary of the mild autism group (6 – 10 years)

Child ID		Number and percentage (%) of parts of speech in the vocabulary of the mild autism group				Total
		<i>Nouns</i>	<i>Verbs</i>	<i>Adjectives</i>	<i>Other POS</i>	
T01	N	244	190	67	77	578
	%	42,21	32,87	11,6	13,32	100
T02	N	319	108	43	54	524
	%	60,88	20,61	8,21	10,3	100
T03	N	320	175	88	41	624
	%	51,28	28,05	14,1	6,57	100
T04	N	342	161	57	30	590
	%	57,97	27,29	9,66	5,08	100
T05	N	284	133	53	38	508
	%	55,91	26,18	10,43	7,48	100
T06	N	294	195	86	103	678
	%	43,36	28,76	12,68	15,20	100
T07	N	249	179	64	52	544
	%	45,77	32,9	11,77	9,56	100
T08	N	401	134	54	44	633
	%	63,35	21,17	8,53	6,95	100
T09	N	318	119	54	47	538
	%	59,11	22,12	10,04	8,73	100
T10	N	452	264	90	219	1025
	%	44,09	25,76	8,78	21,37	100

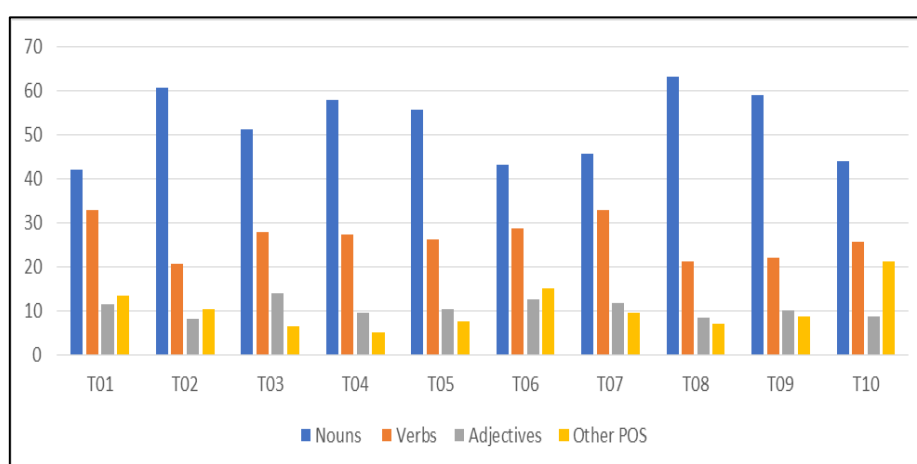


Figure 1. The proportion of parts of speech in the mild autism group (6 – 10 years)

Noun Percentage in the Mild Autism Group (6 – 10 Years)

Nouns constitute the highest proportion among all word classes for every child with mild autism in

this age range. The noun proportion ranges from slightly above 40% to nearly 70%. At this stage, the noun proportion remains very high, indicating that the children's language development is still

considerably delayed and that they continue to rely primarily on words denoting entities and events.

The noun proportion in this group is only comparable to that of typically developing children aged approximately 36 – 48 months, for whom nouns account for 50 - 50.2% of vocabulary (Luu Thi Lan, 1996, pp. 64–65; Ngo Cong Hoan, 1995)

Within the mild autism group, there is a variance in the proportion of nouns among the children. T01 exhibits the lowest noun percentage (42.21%), whereas T02 shows the highest (60.88%). Consequently, the highest noun proportion is 1.44 times greater than the lowest.

Verb Percentage in the Mild Autism Group (6 – 10 Years)

Verbs constitute the second-highest word class after nouns. Their proportion ranges from slightly above 20% to above 30%. T07 has the highest verb proportion (32.90%), whereas T02 has the lowest (20.61%); the highest is approximately 1.59 times the lowest.

Compared with typically developing children, the verb proportion is relatively high and corresponds broadly to the 36-72-month developmental period, when verbs account for approximately 26 - 30.65% (Luu Thi Lan, 1996, pp. 64–65; Ngo Cong Hoan, 1995). This indicates that the children not only maintain a relatively rich noun vocabulary but also increase their repertoire of verbs.

Adjective Percentage in the Mild Autism Group (6 – 10 Years)

Adjectives constitute a relatively small proportion of the total word classes. Their proportion ranges

from slightly above 8% to above 14%. T03 has the highest adjective proportion (14.10%), whereas T02 has the lowest (8.21%); the highest is approximately 1.72 times the lowest.

Compared with typically developing children, the adjective proportion is relatively high and broadly comparable to the 36-72-month period, during which adjectives account for 9.84 - 11.8% (Luu Thi Lan, 1996, pp. 64–65; Ngo Cong Hoan, 1995). This suggests that by this stage the children have a basic vocabulary including nouns, verbs, and adjectives.

Other Parts of Speech in the Mild Autism Group (6 – 10 Years)

Other parts of speech (numerals, pronouns, determiners, adverbs, relators, modal particles, and interjections) account for a low proportion of the total word classes in the mild autism group. This proportion ranges from over 5% to over 21%, indicating a substantial variation among the children within this group. T10 has the highest proportion (21.37%), while T04 has the lowest (5.08%), making the highest approximately 4.21 times the lowest.

This distribution is comparable to typically developing children from below 36 months to below 60 months, for whom other word classes account for approximately 13.6 - 28.32% (Luu Thi Lan, 1996, pp. 64–65; Ngo Cong Hoan, 1995). Despite being in or preparing for primary school, the children's repertoire of other word classes remains limited, indicating a need for continued language therapy.

Number and Percentage of Parts of Speech in the Moderate Autism Group (6 – 10 Years)

Table 2. Number and percentage (%) of parts of speech in the vocabulary of the moderate autism group (6 – 10 years)

Child ID		Number and percentage (%) of parts of speech in the vocabulary of the moderate autism group				Total
		<i>Nouns</i>	<i>Verbs</i>	<i>Adjectives</i>	<i>Other POS</i>	
T11	N	198	80	20	45	343
	%	57,73	23,32	5,83	13,12	100
T12	N	172	70	39	19	300
	%	57,33	23,33	13	6,34	100
T13	N	231	109	62	42	444
	%	52,03	24,55	13,96	9,46	100
T14	N	207	48	14	31	300
	%	69	16	4,67	10,33	100
T15	N	160	78	43	34	315
	%	50,8	24,76	13,65	10,79	100
T16	N	253	100	37	38	428

	%	59,11	23,36	8,65	8,88	100
T17	N	289	70	47	32	438
	%	65,99	15,98	10,73	7,3	100
T18	N	166	59	18	34	277
	%	59,93	21,3	6,5	12,27	100
T19	N	180	61	48	18	307
	%	58,63	19,87	15,64	5,86	100
T20	N	192	110	17	61	380
	%	50,53	28,95	4,47	16,05	100

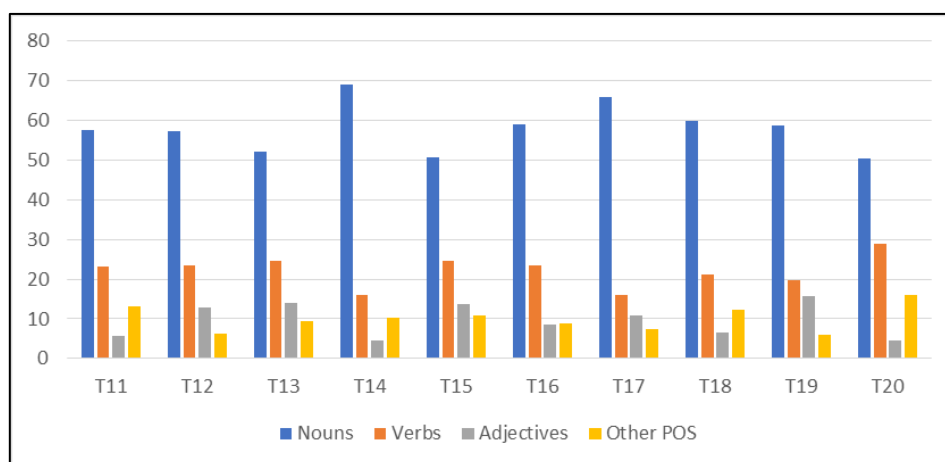


Figure 2. The proportion of parts of speech in the moderate autism group (6 – 10 years)

Noun Percentage in the Moderate Autism Group (6 – 10 Years)

Nouns have the highest proportion in the moderate autism group, ranging from slightly above 50% to nearly 70%. T20 has the lowest proportion (50.53%), while T14 has the highest (69%), making the highest approximately 1.36 times the lowest.

Compared with typically developing children, this is broadly comparable to the period before 36 months, given that typically developing children at 36-48 months show noun proportions around 50-50.2% (Luu Thị Lan, 1996, pp. 64-65; Ngô Công Hoàn, 1995).

Verb Percentage in the Moderate Autism Group (6 – 10 Years)

Verbs are the second most frequent word class, ranging from nearly 16% to nearly 30%. T20 has the highest proportion (28.95%), whereas T17 has the lowest (15.98%); the highest is approximately 1.31 times the lowest.

The distribution is broadly comparable to typically developing children from below 36 months to 48 months. The cited developmental data report verb proportions of 26% at 36 months, 24.4% at 48 months, 33.28% at 60 months, and 29.10% at 72

months (Luu Thị Lan, 1996, pp. 64-65; Ngô Công Hoàn, 1995).

Adjective Percentage in the Moderate Autism Group (6 – 10 Years)

Adjectives account for a relatively small proportion, ranging from above 4% to nearly 16%. T19 has the highest proportion (15.64%) and T20 the lowest (4.47%); the highest is approximately 3.5 times the lowest.

Because of this wide range, the study does not compare the group directly with typically developing children.

Other Parts of Speech in the Moderate Autism Group (6 – 10 Years)

The proportion of other word classes is uneven both across children and relative to other word classes within each child's vocabulary. For T12, T13, T15, T17, and T19, other word classes constitute the lowest proportion. For T11, T14, T16, T18, and T20, they are the third-highest category after nouns and verbs. T19 has the lowest proportion (5.86%), while T11 has the highest (13.12%).

Within the moderate autism group, the percentage of other word classes also varies significantly between the two extremes. T19 exhibits the

minimum proportion, accounting for 5.86% of the total vocabulary, whereas T11 records the maximum at 13.12%. This represents a 2.24-fold

difference compared to the lowest participant (T19).

Number and Percentage (%) of Parts of Speech in the Severe Age Group (6 – 10 Years)

Table 3. Number and percentage (%) of parts of speech in the severe age group (6 – 10 years)

Child ID		Number and percentage (%) of parts of speech in the severe age group				Total
		Nouns	Verbs	Adjectives	Other POS	
T21	N	149	75	24	19	267
	%	55,8	28,1	9	7,1	100
T22	N	172	61	14	31	278
	%	61,87	21,94	5,04	11,15	100
T23	N	145	61	9	34	249
	%	58,24	24,5	3,61	13,65	100
T24	N	99	33	9	19	160
	%	61,88	20,63	5,62	11,87	100
T25	N	84	27	16	15	142
	%	59,15	19,02	11,27	10,56	100
T26	N	148	56	32	26	262
	%	56,49	21,37	12,21	9,93	100
T27	N	107	62	12	53	234
	%	45,73	26,49	5,13	22,65	100
T28	N	174	57	18	24	273
	%	63,73	20,88	6,59	8,8	100
T29	N	149	66	36	37	288
	%	51,74	22,91	12,5	12,85	100
T30	N	218	115	35	32	400
	%	54,5	28,75	8,75	8	100

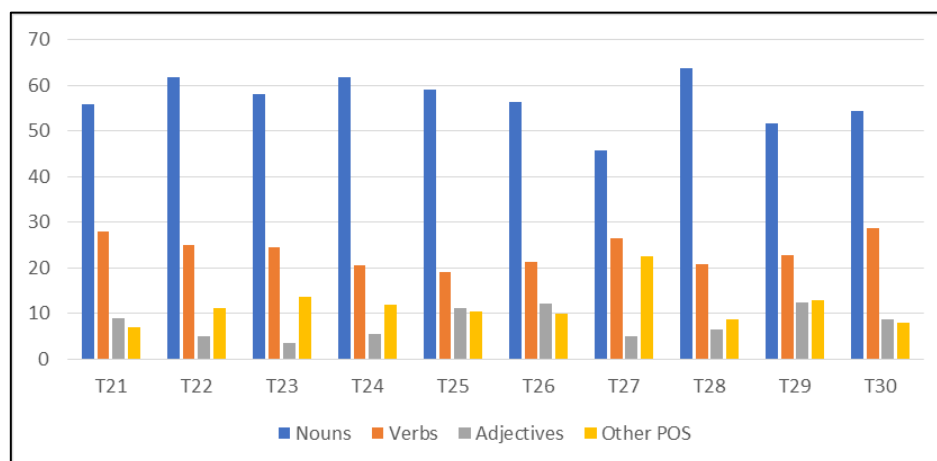


Figure 3. The proportion of parts of speech in the severe autism group (6 – 10 years)

Noun Percentage in the Severe Autism Group (6 – 10 Years)

Nouns constitute a high proportion in the severe group, ranging from nearly 50% to above 60%. This is broadly comparable to typically developing children below 48 months: typically developing children show a noun proportion of 50.2% at 48 months and 33.28% at 60 months (Luu Thi Lan, 1996, pp. 64–65; Ngo Cong Hoan, 1995). Thus,

although the autistic children are aged 6 – 10 years, noun use remains very high.

Verb Percentage in the Severe Autism Group (6 – 10 Years)

Verbs are the second most frequent category after nouns, ranging from above 19% to nearly 30%. This is broadly comparable to typically developing children from below 36 months to 72 months.

Adjective Percentage in the Severe Autism Group (6 – 10 Years)

Adjectives remain a low-frequency category, ranging from above 5% to above 12%, broadly comparable to typically developing children from below 36 months to 72 months.

Other Parts of Speech in the Severe Autism Group (6 – 10 Years)

The proportion of other word classes is uneven. T27 has the highest proportion (22.65%), while T21 has approximately 7%. Compared with typically developing children, this is broadly comparable to the period from below 36 months to below 60 months.

Comparison of Part-of-Speech Characteristics between Autism-Severity Groups (6 – 10 Years) and Typically Developing Children Aged 3 – 6 Years

Table 4. Mean number and percentage of parts of speech across the three autism-severity groups (6 – 10 years)

Severity		Mean number and percentage of parts of speech across the three autism-severity groups (6 – 10 years)				Total
		Nouns	Verbs	Adjectives	Other POS	
Mild	N	322,3	165,8	65,6	70,5	624,2
	%	51,63	26,56	10,51	11,3	100
Moderate	N	204,8	78,5	34,5	35,4	353,2
	%	57,98	22,23	9,77	10,02	100
Severe	N	144,5	61,3	20,5	29	255,3
	%	56,6	24,01	8,03	11,36	100

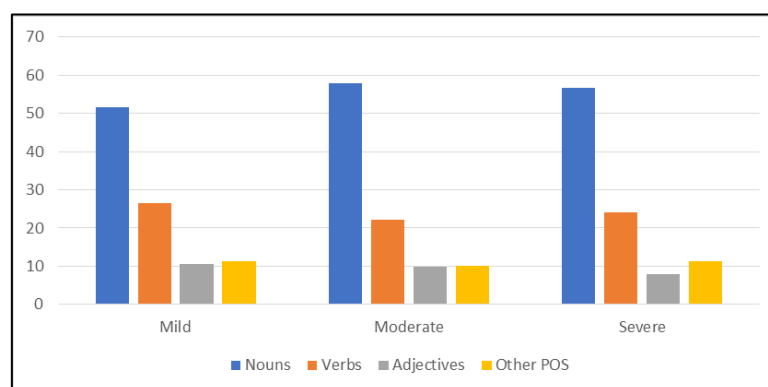


Figure 4. Word class proportions in three autistic groups (6 – 10 years)

Nouns represent the word class that consistently accounts for the highest proportion across all three severity groups (mild, moderate, and severe). Among these, the mild autism group exhibits the lowest noun percentage at 51.63% of the total word classes. The noun proportions in both the moderate and severe autism groups remain high with no substantial discrepancy, standing at 57.98% and 56.6%, respectively.

Verbs constitute the second highest word class across all three groups of children with autism. Specifically, the mild autism group shows the highest verb proportion among the three groups at 26.56%, followed by the severe group (24.01%) and the moderate group (22.23%).

Adjectives account for a minor proportion in all three autistic groups. The mild group registers the highest adjective percentage (10.51%), followed

by the moderate group (9.77%), while the severe group demonstrates the lowest percentage (8.03%).

The proportion of other word classes does not exhibit significant variance among the three autistic groups. The severe group reaches the highest percentage (11.36%), followed by the mild group (11.3%), and the moderate group records the lowest at 10.02%.

The distribution of each word class across the three groups shows minimal discrepancy and is highly comparable to that of typically developing children aged 3 to 6 years:

The noun proportion across all three groups exceeds 50%, which is equivalent to that of typically developing children aged 36-48 months. For typically developing children, nouns account for 50% at 36 months and 50.20% at 48 months. Upon entering the 60-72 month stage, the noun

proportion in typically developing children decreases markedly, accounting for 33.28% at 60 months and 30.94% at 72 months [Luu Thi Lan, 1996, pp.64-65; Ngo Cong Hoan, 1995].

The verb proportion across all three groups exceeds 20%, which is equivalent to that of typically developing children in the 36-48 month range. For typically developing children, the verb proportion is 26% at 36 months and 24.4% at 48 months; moving into the 60-72 month stage, the verb proportion increases from over 29% to nearly 31% [Luu Thi Lan, 1996, pp.64-65; Ngo Cong Hoan, 1995].

Adjectives in the three groups fluctuate from over 8% to over 10%, matching the levels found in typically developing children from under 36 months to 60 months of age. Typically developing children at 36 months exhibit an adjective proportion of 10%, and at 60 months, it stands at 9.84% [Luu Thi Lan, 1996, pp.64-65; Ngo Cong Hoan, 1995].

The proportion of other word classes across all three groups ranges from over 10% to over 11%. This percentage is equivalent to that of typically developing children under 36 months. At 36 months, typically developing children already exhibit a 14% share for other word classes, which gradually rises to over 28% by 72 months of age.

Consequently, in terms of word class distribution, there is no significant discrepancy among the three groups of children. At this stage, most autistic children across all three groups have not received intensive linguistic intervention, particularly regarding vocabulary size and specific word classes. The proportion of each word class across the three groups aligns with the distribution observed in typically developing children ranging from under 36 months to 72 months. Therefore, despite having reached the age chronological range of 6 to 10 years, their language profiles are only equivalent to those of typically developing children under 6 years old. This developmental lag severely restricts their ability to acquire knowledge as well as their communication skills in the school environment.

Comparison of Part-of-Speech Characteristics between Autistic Children Aged 6 – 10 Years and Autistic Children Aged 3 – 6 Years

By synthesizing the data from Table 2.8 (The average quantity and proportion of word classes across three groups of autistic children aged 6 – 10 years) with the findings on word class distributions in autistic children aged 3 – 6 years by Nguyen Thi Giang (2024), we establish a comparative analysis of word class characteristics across different severity levels of autism between the 3–6 and 6–10 age groups as follows:

Comparison of Noun Proportions between the 6 – 10 and 3 – 6 Age Groups"

Table 5. Number and percentage of nouns by autism severity during the 3 – 6-year period

Severity		<i>Period</i>			
		<i>36 months</i>	<i>48 months</i>	<i>60 months</i>	<i>72 months</i>
Severe	N	1.75	10	32.5	73.25
	%	77.78%	54.79%	52.85%	48.83%
Moderate	N	1.75	29.5	97.25	179.75
	%	63.64%	47.39%	43.51%	47.12%
Mild	N	40.43	115.86	205.57	295.57
	%	53.40%	51.36%	51.26%	49.02%

(Nguyen Thi Giang, 2024)

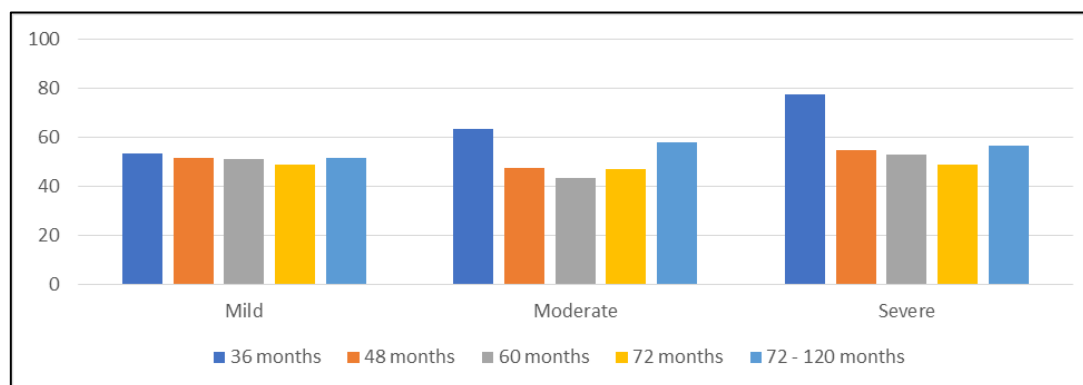


Figure 5. Noun proportions across the three groups of autistic children during the 3 – 6 and 6 – 10 age ranges

The tables and charts displaying noun percentages in the three groups of children with autism from ages 3 – 6 to 6 – 10 indicate that:

The noun proportion within the mild autism group exhibits minimal variance throughout the 3-to-10 age range. The percentage of nouns at 3 years of age (36 months) is slightly higher than in the subsequent stages, standing at 53.40%. Following this, the noun proportion decreases marginally until 72 months of age before rebounding to 51.63% during the 6 – 10 age range;

For the moderate autism group, nouns account for a relatively high proportion at 36 months (63.64%)

but drop sharply to 47.12% by 72 months. Upon entering the 6 – 10 age range, the noun proportion within this group increases again to 57.98%;

The severe autism group demonstrates a remarkably high noun proportion at 36 months (77.78%), which then gradually declines to 48.83% by 72 months. Moving into the 6 – 10 age range, this percentage rises once more to 56.60%.

Consequently, the noun proportions across all three severity groups of autistic children show no substantial fluctuation or significant difference between the 3 – 6 and 6 – 10 age ranges.

Comparison of Verb Proportions between 6 – 10 Years and 3 – 6 Years

Table 6. Number and percentage of verbs by autism severity during the 3 – 6-year period

Severity		Period			
		36 months	48 months	60 months	72 months
Severe	N	0	2.5	9	18.75
	%	0%	13.70%	14.63%	12.50%
Moderate	N	0.25	13.75	40.5	55.75
	%	9.09%	22.09%	18.12%	14.61%
Mild	N	11	39.57	74.86	112.71
	%	14.53%	17.54%	18.67%	18.69%

(Nguyễn Thị Giang, 2024)

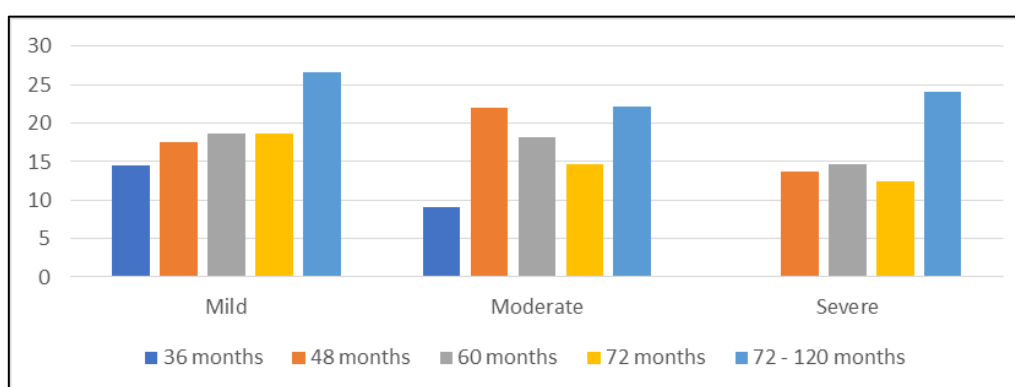


Figure 6. Verb proportions across the three groups of autistic children during the 3 – 6 and 6 – 10 age ranges

The verb proportion within the mild autism group exhibits an upward trend from ages 3 to 10. Notably, upon entering the 6–10 age range, the percentage of verbs is remarkably higher than in the previous stages. In the earlier stages, the verb proportion fluctuated only between nearly 15% and nearly 19%. However, in the 6 – 10 age range, the verb proportion for this group increases to 26.56%, which is 1.8 times greater than at 36 months and 1.4 times higher than at 72 months of age. This demonstrates that in addition to using words for concrete objects and events, children at this stage have acquired a highly diverse vocabulary for "actions" - which is considered the

backbone of communication. This underscores a robust linguistic development within this group.

For the moderate autism group, the verb proportion experiences a sharp spike during the 36 – 48 month stage, rising from 9.09% to 22.09%, before dropping to 14.61% at 72 months and rebounding to 22.23% in the 6 – 10 age range. Thus, the verb proportion within this group has also increased compared to the previous period, indicating that these children have successfully built a verb repertoire for communication.

The severe autism group demonstrates a relatively low verb proportion during the 3 – 6 age range, fluctuating between 0% and 14.63%. Upon

transitioning into the 6 – 10 age range, the verb proportion rises to 24.1%, which is 1.6 times greater than the highest peak recorded in the previous stage (at 60 months of age).

Consequently, verbs represent a word class that undergoes a significant increase during the 6 – 10 age range. This trend clearly reflects a qualitative development in the language profiles of autistic children during this stage.

Comparisons of Adjective Proportions between 6 – 10 Years and 3 – 6 Years

Table 7. Number and percentage of adjectives by autism severity during the 3 – 6-year period

Severity		Period			
		36 months	48 months	60 months	72 months
Severe	N	0.5	1.75	8.25	17.5
	%	22.22%	9.59%	13.41%	11.67%
Moderate	N	0.5	9	16.75	26.75
	%	18.18%	14.46%	7.49%	7.01%
Mild	N	8.29	23.57	38.14	51.57
	%	10.94%	10.45%	9.51%	8.55%

(Nguyen Thi Giang, 2024)

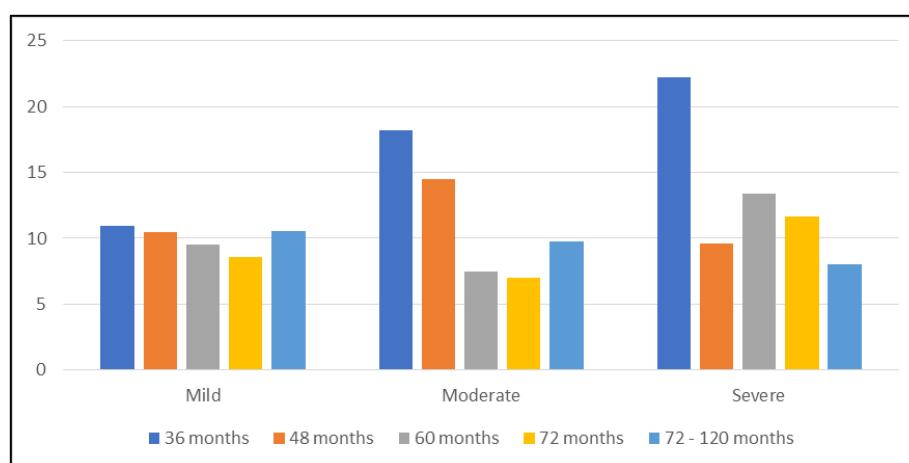


Figure 7. Adjective proportions across the three groups of autistic children during the 3 – 6 and 6 – 10 age ranges

The adjective proportion in the mild group remains relatively stable from ages 3 – 6 to 6 – 10, ranging from approximately 9% to 11%. Adjectives therefore show relatively little change between the two developmental periods. The mild group is also

broadly comparable to typically developing children aged 3 – 6 years, whose adjective proportion ranges from approximately 10% to 12%.

Comparison of other Word Classes between 6 – 10 Years and 3 – 6 Years

Table 8. Number and percentage of other parts of speech by autism severity during the 3 – 6-year period

Severity		Period			
		36 months	48 months	60 months	72 months
Severe	N	0	4	11.75	40.5
	%	0.00%	21.92%	19.11%	27.00%
Moderate	N	0.25	10	69	119.25
	%	9.09%	16.06%	30.87%	31.26%
Mild	N	16.00	46.57	82.43	143.14
	%	21.13%	20.65%	20.56%	23.74%

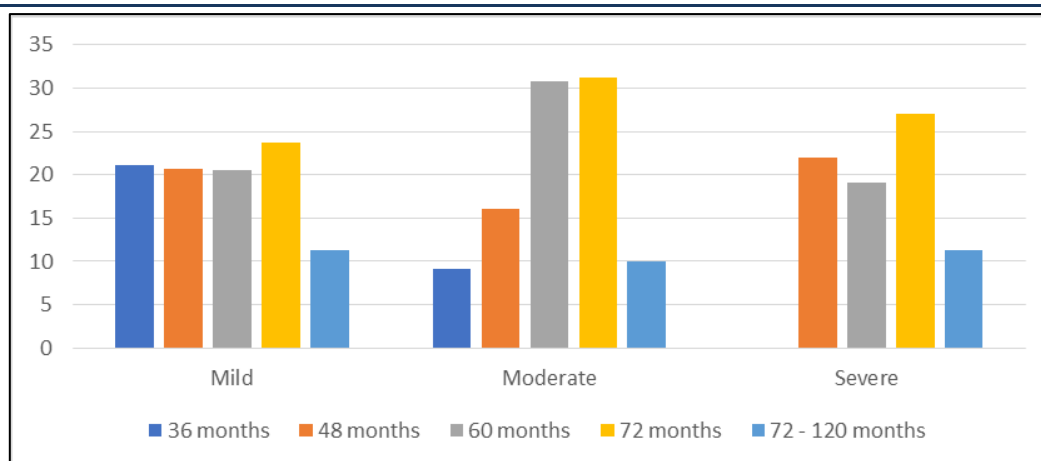


Figure 8. Proportion of other word classes across the three groups of autistic children during the 3 – 6 and 6 – 10 age ranges

The proportion of other word classes exhibits a striking contrast between the two developmental stages. During the 3 – 6 age range, the percentage of other word classes shows a gradual upward trend from 36 to 72 months. Upon transitioning to the 6 – 10 age range, however, this proportion declines substantially.

Within the mild autism group, the proportion of other word classes stands at 23.74% at 72 months of age, but drops significantly to 11.3% during the 6 – 10 age range (representing a 2.1-fold decrease compared to the previous stage). This proportion during the 6 – 10 age stage is nearly as low as that recorded when the children were 36 months old. At 36 months, other word classes account for 9.09%, which later peaks at 31.26% at 72 months of age. In contrast, during the 6 – 10 age range, this figure drops back to a mere 10.2%.

A similar pattern is observed within the moderate autism group. In the 3 – 6 age range, the proportion of other word classes rises progressively from 0 % (at 36 months) to 27 % at 72 months, before declining to 11.30% during the 6 – 10 age stage.

This phenomenon can be attributed to the fact that during the earlier stage, when the children initially began acquiring language, cardinal numbers accounted for a relatively large portion of their vocabulary. Upon entering the current stage, children no longer repeat the cardinal numbers they have already mastered during one-on-one intervention sessions. Despite this shift, it remains evident that the linguistic capabilities of children with autism remain severely limited, and they continue to face significant difficulties in utilizing other word classes.

Overall, although these children have transitioned into the 6 – 10 age range, their language proficiencies remain highly restricted. In terms of word class distribution, their ability to use various word classes within their active vocabulary is merely equivalent to that of typically developing children under 6 years old. Nonetheless, certain qualitative advancements within their vocabulary profiles can be observed at this stage, namely the increased proportions of verbs and adjectives. These elements serve as the core linguistic “backbone” that enables children to participate in communicative interactions.

Measures for Developing Parts of Speech in Autistic Children

As analyzed above, children with autism experience profound limitations in using a diverse range of word classes, particularly verbs, adjectives, and functional words. Therefore, to facilitate a rich vocabulary acquisition, close attention must be paid to targeted intervention measures for expanding the children’s word classes.

Developing word classes in autistic children is not merely a process of increasing vocabulary size; it serves as a fundamental cornerstone for shaping linguistic thinking, generalizability, and social communication skills. During the 6 – 10 age range, children begin participating in formal academic activities that demand more precise and coherent language usage. Recent studies emphasize that effective interventions must be grounded in the principles of multisensory engagement, contextualization, and social interaction to optimize language reception and production (Schreibman *et al.*, 2015).

Noun Development through Visual and Tactile Experience

Nouns enable children to bridge the gap between words and the physical world. Utilizing concrete objects, visual aids, or brief classroom experiments creates meaningful opportunities for children to label, point out, and generalize target items. For example, when teaching the lexical item "book," the teacher may allow the child to hold and open a physical book while pointing and asking, "What is this?" to elicit the response "book." Subsequently, the child identifies pictures of books on the board to reinforce cognitive generalization. Research confirms that visual supports and tactile interaction significantly enhance noun retention, particularly for autistic children who exhibit limitations in joint attention and receptive language (Flippin, Reszka, & Watson, 2010).

Verb Development through Motor Activities and Modeling

Verbs present a significant challenge for children with autism due to the demands of action generalization. An effective strategy is to engage children in performing actions, combined with verbal modeling provided by teachers and parents. For example, the teacher may instruct, "Jump," and execute the movement alongside the child. The teacher then asks, "What are you doing?" to elicit the response "jump." This physical engagement is replicated with other target verbs such as 'run,' 'sit,' and 'clap.' Systematic repetition and immediate feedback help the children firmly map physical actions onto linguistic labels (Tager-Flusberg, Paul, & Lord, 2005).

Adjective Development through Multisensory Stimulation

Adjectives convey abstract descriptive qualities. Immersing children in sensory activities involving taste, touch, and vision - such as tasting sweet versus sour, touching soft versus hard, or observing colors - helps them connect immediate physical experiences with corresponding descriptive terms. For example, when teaching the concepts of "sweet" and "sour," the teacher may have the child taste a piece of sweet candy and a slice of lemon, subsequently asking, "How is the candy?" to elicit the response "sweet," and "How is the lemon?" for the response "sour." Similarly, for color adjectives, the child identifies a "red ball" and a "blue ball." This approach serves as an effective strategy for constructing a vocabulary linked with emotions and states (Herz, 2016).

Developing Functional Words, Pronouns, and Conjunctions within Natural Contexts

Children with autism often omit functional words because they carry minimal concrete meaning. However, to ensure accuracy and coherence within sentences, these words must be taught within real conversational contexts through Naturalistic Developmental Behavioral Interventions (NDBIs). For example, during a "dining together" game, the teacher asks, "Who is eating rice?" and the child responds, "I am eating rice." The teacher further prompts, "You and mommy are eating rice together." Through this, the child learns the pronouns "who, I, mommy" and the conjunction "and." Combining interactive play with guided conversation demonstrates significant efficacy (Schreibman *et al.*, 2015).

Applying Digital Technology to Reinforce Part-of-Speech Development

Integrating technological applications, such as AAC devices, specialized apps, and gamified learning platforms, facilitates the personalization of vocabulary content, sustains engagement, and supports autistic children in systematically utilizing distinct word classes. For example, on a tablet screen, a child may select an image representing "run" within an application; the interface then displays a video of a child running, prompting the participant to imitate the action and utter the word "run." Empirical evidence indicates that tablet-based interventions not only expand vocabulary but also enhance sustained attention capabilities (Hourcade *et al.*, 2013).

Intervention measures targeting parts of speech must be implemented through a multi-level and multi-contextual approach, fusing linguistic instruction, sensory experiences, and socio-behavioral interventions. The pivotal role of parents and educators in co-navigating and reinforcing target vocabulary within daily routines remains the critical factor for sustaining long-term efficacy.

DISCUSSION

Based on the research findings presented above, we assert that this study is entirely novel and holds practical value for understanding the language of autistic children, specifically regarding the characteristics of word class distribution within the active vocabulary of those aged 6 –10. In this article, we analyzed the word class characteristics of each specific group of children with autism, established a comparative analysis of these traits across different severity levels, and contrasted

them with typically developing peers. The analytical results reveal that nouns consistently account for the highest proportion across all three severity groups of autistic children during both the 6 – 10 and 3 – 6 age ranges. Verbs constitute the second highest word class; notably, the verb proportion during the 6 – 10 stage is remarkably higher than in the previous period, reflecting a "qualitative development" in the children's linguistic abilities. Conversely, the percentages of adjectives and other word classes remain low within the vocabulary profiles of children with autism across both developmental stages, a trend that aligns with data from typically developing children. However, compared to their typically developing peers, the language abilities of autistic children in the 6 – 10 age range are merely equivalent to those of typically developing children in the earlier stage (3 – 6 years old). This developmental lag severely impacts the children's cognitive processing as well as their communication. Therefore, continuous intervention and systematic expansion of word classes are imperative to enable these children to utilize language flexibly for communication and learning.

Across all three severity levels, the children consistently exhibit a stronger inclination toward using nouns over verbs, adjectives, and other parts of speech. This characteristic aligns with international studies (e.g., Tek *et al.*, 2014; Goodwin *et al.*, 2019), which underscores that autistic children frequently prioritize lexical items denoting concrete objects, whereas their ability to utilize verbs and adjectives - which demand relational flexibility to express actions and attributes - remains restricted. This asymmetry reflects a universal core deficit among autistic children in developing conceptual and abstract language.

The noun bias within the vocabulary of children with autism can be explained from multiple perspectives. First, nouns are generally easier to acquire because they map directly onto concrete, observable objects in the physical world. Second, children on the autism spectrum often demonstrate a heightened focus on isolated details and objects, yet encounter profound difficulties in processing dynamic-static relationships or affective states, which are typically encoded through verbs and adjectives. Third, the children's communicative environments, including familial interactions and therapeutic interventions, may reinforce the acquisition of nouns over other lexical categories.

From an applied perspective, the findings of this study suggest that language intervention programs designed for autistic children must place greater emphasis on **enhancing the production of verbs and adjectives**. Therapeutic activities should actively encourage children to describe actions, states, and emotions, rather than merely stopping at labeling objects. Concurrently, it is essential to engineer highly interactive communication environments where children are prompted to use language in a more flexible and creative manner.

Finally, this study possesses several limitations. First, the sample size is relatively constrained (30 participants); thus, future research utilizing larger cohorts is required to enhance statistical generalizability. Second, this study focused exclusively on the quantity and proportion of word classes, without conducting an in-depth analysis of grammar, syntax, and pragmatics, which also constitute critical dimensions of language in autism. Future investigations should expand into these domains to provide a more holistic understanding.

CONCLUSION AND RECOMMENDATIONS

Conclusion

A case study conducted in Vietnam focusing on the part-of-speech characteristics in the language profiles of autistic children aged 6 to 10 reveals several salient features: (i) the children's noun vocabulary typically develops early and is better sustained compared to other word classes, primarily mapping onto familiar objects within daily routines; (ii) verbs, particularly those denoting abstract actions or those infrequently encountered in direct physical experiences, exhibit a tendency toward delayed development and are highly restricted in their scope of utilization; (iii) adjectives and lexical items expressing descriptive attributes or states are utilized less frequently, leading to pronounced limitations in descriptive and socio-emotional expression; (iv) functional words (pronouns, conjunctions, and prepositions) emerge unstably and are frequently omitted or substituted, thereby undermining grammatical accuracy and structural coherence during communication.

These findings strongly support the hypothesis that the language development of autistic children progresses unevenly across word classes, modulated by the levels of concreteness versus abstractness as well as the frequency of experiential exposure within their immediate

environments. Concurrently, the results demonstrate a profound reliance on visual and sensory contexts during both the reception and production of word classes, aligning with historical literature regarding the cognitive-linguistic profiles of autistic children (Tager-Flusberg & Kasari, 2013; Eigsti et al., 2011).

RECOMMENDATIONS

From an applied perspective, this study suggests that language intervention programs designed for autistic children should:

Prioritize the balanced development of word classes, expanding not only nouns but also placing emphasis on verbs, adjectives, and functional words to enhance both academic and social communication skills.

Apply multisensory approaches and contextualization, particularly when teaching verbs and adjectives, helping children connect words with real-world physical experiences and emotions.

Enhance training for parents and educators to ensure that the reinforcement of word classes occurs continuously within daily routines.

Harness augmentative and alternative communication (AAC) technology and digital applications to expand accessible learning opportunities and diversify functional practice scenarios.

Regarding future research directions, it is essential to conduct large-scale studies using controlled experimental designs to verify the statistical generalizability of these findings; concurrently, further in-depth analysis should investigate the intricate correlation between word class development and socio-cognitive factors, aiming to propose optimized intervention models tailored specifically to the special education landscape in Vietnam.

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